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DOES A PRIMARY TUBERCULOUS INFECTION AFFORD ADEQUATE PROTECTION AGAINST CONSUMPTION?

CHESTER A. STEWART, M.D.

MINNEAPOLIS

The ability of nonallergic individuals to cope successfully with initial infections of varied doses of tubercle bacilli such as are commonly received in average human experience apparently is so prevalent in man that but few can identify the time they acquired the primary type of tuberculosis by any known illness or impairment of health directly attributable to this disease. Almost without exception, one remains entirely ignorant of the fact that one has primary tuberculosis until its presence is revealed by a positive reaction to tuberculin. To assume that relatively few bacilli are received usually when first infections occur and to conclude that small initial dosage unaided by some form of natural resistance fully explains why primary tuberculosis tends to be a benign disease with great regularity does not seem to harmonize with clinical observations reported by Wessler and Bass,[1] Hempelmann,[2] Ribadeau-Dumas and Béclère,[3] Bernard and Debré,[4] Eliasberg and Neuland,[5] Greenberg,[6] Debré and Joannon,[7] Bernard and Paraf,[8] Wallgren,[9] Gerstenberger and Burhans,[10] Paulsen,[11] Goldberg and Gasul,[12] Henricke,[13] Stewart [14] and others, which show that infants and children are admirably equipped to withstand and to overcome successfully severe primary tuberculous infections, and to resolve single and multiple large acute pulmonary infiltrations to relatively insignificant calcified scars.

These observations, which have revealed the survival and the restoration to apparently normal health of heavily infected infants and children, indicate that uninfected nonallergic individuals possess a remarkable inherent ability to repair, to resolve and to calcify extensive as well as slight damage wrought by this organism's first invasion of the body. Presumably an unnamed and unmeasured but reliable mechanism of natural resistance normally resides in every healthy human body, which operates so effectively that it regularly reduces the health impairing, tissue necrotizing and death dealing potentialities of the tubercle bacilli to the level that makes it possible to classify tuberculosis of first infection correctly as a benign disease whose prognosis is good and also permits one rarely if ever to witness death following authentic, single primary tuberculous infections.

That the normal status of uncontaminated healthy individuals provides a protection against tuberculosis which practically guarantees that the first infection by the tubercle bacillus, to which all are naturally susceptible, will result quite regularly in a benign and rarely fatal disease seems to be a logical rather than a rash interpretation of the situation. Regardless of how one may feel inclined to interpret this evidence, the importance of seeking data as to whether primary tuberculous infections enhance or impair the normal mechanism of resistance with which man is endowed by nature to combat the disease seems apparent. This report, based on records of eighty-four consumptive patients examined at the Lymanhurst School for Tuberculous Children in Minneapolis is submitted, therefore, with the conviction that the observations made on these children have a significant bearing on the answer to the question; Does a primary tuberculous infection afford adequate protection against consumption? These eighty-four cases include all the consumptive patients found in a group of slightly more than 10,000 children examined at Lymanhurst for tuberculosis. No cases were omitted from the group selected for this study unless the diagnosis was still pending or was uncertain.

Table 1 contains the records of four children who gave negative tuberculin tests and had normal roentgenograms of the chest when first examined. The evidence obtained at that time indicated that these children had never experienced a primary tuberculous infection. On reexamination, however, three, six, seven and ten years, respectively, after their first study was made, each of these four patients was found to have consumption. Details as to what transpired during these intervals which led to their present conditions are unknown. Since information as to when and how

From the Lymanhurst School for Tuberculous Children and the Department of Pediatrics, University of Minnesota Medical School.

1. Wessler, H., and Bass, M. H.: Recurrent Hilus Infiltration, Am. J. Dis. Child. **11:** 198 (March) 1916.
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6. Greenberg, David: Chronic Tuberculous Hilus Pneumonia in Children, Am. J. Dis. Child. **21:** 65 (Jan.) 1921.
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8. Bernard, Leon, and Paraf, Jean: Les formes curables de la tuberculose evolutive du nourrisson, Ann. de méd. **19:** 638 (June) 1926.
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11. Paulsen, Valdemar; Jensen, K. A., and Husted, E.: The Demonstration of Tubercle Bacilli in Small Children with Pulmonary Tuberculosis, Am. J. Dis. Child. **37:** 900 (May) 1929.
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13. Henricke, S. G.: Benign Infiltrations in the Childhood Type of Tuberculosis, Northwest Med. **30:** 109 (March) 1931.
14. Stewart, C. A.: Pulmonary Diseases: 5,816 Cases in Children with Special Reference to the Childhood Type of Pulmonary Tuberculosis, Am. J. Dis. Child. **43:** 802 (April) 1932.

often these four patients were infected is lacking, their records are valueless in determining exactly how they became consumptive. Their incomplete records also are worthless with respect to the evidence they yield relative to the degree of protection primary tuberculous infections confer against reinfections. On the basis of the data available, no conclusions seem warranted except to the effect that consumption was found in four patients in whom tuberculin tests were negative, three or more years previously, and roentgenograms were normal.

In table 2, observations are recorded for nineteen children who, when first examined, reacted positively to reinfection pulmonary tuberculosis (phthisis) were found by roentgen examination, and without exception the individual tuberculin reactions were positive. Additional lesions were also visualized on the films taken at that time in this group of cases, which were deemed sufficiently characteristic and conspicuous to warrant their identification as calcified scars of primary tuberculosis. In sixteen instances these scars were present in the form of calcium deposits in the hilus glands, and in the form of Ghon tubercles associated with calcification of regionally related lymph nodes in the remaining nine children. Thus, when first examined, primary tuberculosis was found coexisting with reinfection

TABLE 1.—*Records of Four Children Whose Initial Examinations Were Negative But Who Had Reinfection Pulmonary Tuberculosis on Reexamination*

Number	Sex*	Tuberculin Reaction	Initial Roentgen Interpretation	Date	Age	Later Roentgen Interpretation	Date	Interval in Years	Present Condition
1	♀	Negative	Negative	6/22	13	Moderately advanced phthisis	6/32	10	Far advanced, in sanatorium
2	♀	Negative	Negative	9/22	13	Moderately advanced	2/30	7½	Moderately advanced, in sanatorium
3	♀	Negative	Negative	5/23	13	Far advanced phthisis	5/29	6	Far advanced, in sanatorium
4	♀	Negative	Negative	10/28	17	Moderately advanced	9/31	3	Moderately advanced, in sanatorium

* In the tables, ♂ indicates male; ♀, female.

TABLE 2.—*Records of Nineteen Children With Reinfection Pulmonary Tuberculosis When First Examined, but no Evidence of Primary Tuberculosis*

Number	Sex	Tuberculin Reaction	Initial Roentgen Interpretation	Date of Initial Roentgen Examination	Age	Source of Exposure	Present Condition
1	♂	Plus	Far advanced phthisis	3/25	9	?	Died 3/31
2	♀	Plus	Moderately advanced with cavity	3/22	10	?	Living in sanatorium; moderately advanced
3	♀	Plus	Incipient parenchymatous lesion, left apex	6/24	12	?	Moderately advanced, 1928; lost trace then
4	♂	Plus	Far advanced with cavity	7/29	12	?	Died, 1932
5	♀	Plus	Moderately advanced apical lesion	7/30	12	Roomer	Lost
6	♀	Plus	Moderately advanced, bilateral with cavity	11/29	13	Father	Living in sanatorium; moderately advanced
7	♀	Plus	Bilateral apical; moderately advanced	6/28	13	Mother	Living in sanatorium; moderately advanced
8	♀	Plus	Far advanced with cavities	10/28	13	Mother	Far advanced; living
9	♀	Plus	Far advanced	3/22	13	Sister	Died, 1932
10	♂	Plus	Apical infiltration; moderately advanced	1/25	14	?	Living, 1930; arrested
11	♀	Plus	Moderately advanced apical with cavity	6/24	14	Father	Living in sanatorium; moderately advanced
12	♀	Plus	Moderately advanced	4/23	14	Brother	Died, 12/29/24
13	♀	Plus	Moderately advanced	7/24	14	Grandmother	Living; arrested
14	♀	Plus	Moderately advanced; bilateral	9/ 1/23	14	?	Living in sanatorium; moderately advanced
15	♂	Plus	Moderately incipient	4/31	15	?	Living at home; also had tuberculosis of the dorsal spine; arrested
16	♂	Plus	Far advanced; bilateral with cavity	6/30	15	Brother	Living in sanatorium; far advanced
17	♂	Plus	Far advanced	8/23	16	?	Died, March, 1924
18	♂	Plus	Incipient	8/30	16	Father	Living in sanatorium; incipient, arrested
19	♀	Plus	Bilateral, incipient	2/31	19	Friend	Living at home; arrested

tuberculin and had roentgen evidence of consumption (reinfection pulmonary tuberculosis) present in various stages. No lesions characteristic of primary tuberculosis, however, were found in this group of patients by roentgen study, and no knowledge exists as to how long they had been allergic to tuberculin previous to their first visit to Lymanhurst. The observations made on this group of ten children thus fail to reveal the sequence of events which led to the condition found and fail to contribute evidence for or against the notion that primary tuberculous infections afford protection against consumption.

The observations made on the cases listed in table 3, however, yield clues which indicate that primary tuberculous infections frequently fail to prevent the developing of consumption. In each of these twenty-five children, parenchymal infiltrations characteristic of tuberculosis (consumption) in this group of twenty-five children. Since in these instances it is not known for certain whether the calcified primary types of lesions antedated or followed the appearance of the reinfection types of lesions, apparently the only deduction that can be drawn that coincides with the known facts relative to this group of patients is to the effect that primary and reinfection types of pulmonary tuberculosis are found coexisting in certain children when first examined. I am inclined to feel, however, that these observations provide circumstantial evidence which indicates that primary tuberculous infections fail to prevent consumption from developing. This opinion is supported by the observations made on the group of cases listed in table 4, whose records are known with detail sufficient to prove that primary tuberculous infections do not prevent consumption from developing at

some later period and to indicate that first infections by Mycobacterium tuberculosis alter the normal state of resistance possessed by the uninfected body in such a manner that, instead of again being able to experience the benign form of the disease, the patient is doomed thereafter to have some reinfection type of tuberculosis (consumption and the like) develop, if successfully reinfected.

These thirty-six children, when first seen, gave positive tuberculin reactions, and on roentgen examination their films were normal in nine instances, revealed calcified hilus glands in fourteen cases, and in the remaining thirteen cases of this group demonstrated the presence of Ghon tubercles associated with calcified hilus glands. In no instance was evidence of reinfection types of tuberculosis found in this series of thirty-six children coexisting with the primary disease present at the time they were first examined. At that time, therefore, each child in the group had tuberculosis of first infection exclusively, visualized by roentgen examination in twenty-seven cases and not revealed in the remaining nine instances. Subsequently, these thirty-six cases were followed and repeated examinations made, and after varying periods of observation (table 4) a reinfection type of tuberculosis (consumption) developed in each child in this group. Now nine

TABLE 3.—*Records of Twenty-Five Children With Primary and Reinfection Pulmonary Tuberculosis Coexisting When First Examined*

Number	Sex	Age	Tuberculin Reaction	Initial Roentgen Examination			Source of Exposure	Present Condition and Treatment
				Date		Interpretation		
1	♂	10	Plus	2/28	Calcified Hilus Glands and	Incipient	Mother	On pneumothorax
2	♀	11	Plus	11/26		Incipient	?	At home; arrested
3	♀	12	Plus	3/23		Incipient	Father	In sanatorium; moderately advanced
4	♀	12	Plus	9/24		Moderately advanced	Father	In sanatorium; far advanced
5	♀	12	Plus	4/29		Incipient	Mother	At home; arrested
6	♂	13	Plus	2/30		Moderately advanced	Mother	At sanatorium; moderately advanced
7	♀	14	Plus	2/24		Incipient	Father	At sanatorium; arrested
8	♀	14	Plus	11/29		Incipient	Sister	At sanatorium; incipient
9	♂	14	Plus	4/30		Moderately advanced	Mother, father	At sanatorium; moderately advanced
10	♂	15	Plus	1/24		Moderately advanced	Father	Died, 1927
11	♂	15	Plus	1/28		Incipient	Uncle	At sanatorium; arrested
12	♀	16	Plus	1/26		Moderately advanced	Sister, brother	At sanatorium; far advanced
13	♀	16	Plus	9/28		Incipient	Mother	At sanatorium; moderately advanced
14	♀	17	Plus	2/27		Moderately advanced	Friend	At home; moderately advanced
15	♀	18	Plus	6/24		Moderately advanced	Mother, father	Pneumothorax
16	♀	18	Plus	4/22		Moderately advanced	Mother, father	Died, 1930
17	♀	7	Plus	4/31	Ghon Tubercles and	Incipient	Father	At home; incipient
18	♀	7	Plus	4/32		Incipient	Mother	At home; incipient
19	♀	9	Plus	6/26		Far advanced	Father	Died, 1926
20	♀	9	Plus	11/31		Moderately advanced	Father	Pneumothorax
21	♀	11	Plus	5/23		Incipient	?	Lost contact
22	♀	13	Plus	4/27		Incipient	Father, sister	At home; moderately advanced
23	♂	14	Plus	4/29		Incipient	Father	At home; moderately advanced
24	♀	14	Plus	4/31		Moderately advanced	Grandfather	At home; pneumothorax
25	♀	15	Plus	6/31		Incipient	Aunt, father	At home; pneumothorax

TABLE 4.—*Records of Thirty-Six Children With Primary Tuberculosis Exclusively on First Examination in Whom Reinfection Pulmonary Tuberculosis Later Developed*

No.	Sex	Age	Tuberculin Reaction	First Roentgen Examination		Later Roentgen Examination		Source of Infection	Present Condition and Treatment	Age at Time of Discovery of	
				Interpretation	Date	Interpretation Stage of Consumption Present	Interval, Months			Primary Tuberculosis	Adult Type of Tuberculosis
1	♀	9	Plus	Negative; no reinfection tuberculosis	10/24	Far advanced	84	?	Far advanced; in sanatorium	9	16
2	♀	10	Plus		7/22	Moderately advanced	108	Father	Died 4/32	10	20
3	♀	11	Plus		11/26	Moderately advanced	58	Aunt	Moderately advanced; home care	11	16
4	♀	12	Plus		7/23	Incipient	58	Mother	Incipient; home care	12	17
5	♀	12	Plus		1/25	Far advanced	77	Sister	Far advanced; in sanatorium	12	18
6	♀	12	Plus		1/28	Far advanced	18	?	Died, 1929	12	13
7	♀	14	Plus		2/27	Incipient	23	Mother	Incipient; in sanatorium	14	16
8	♀	14	Plus		7/27	Incipient	12	Father	Moderately advanced; in sanatorium	14	16
9	♀	16	Plus		7/28	Incipient	4	Sister	Moderately advanced; pneumothorax	16	16
10	♀	11	Plus		9/26	Far advanced	45	Brother, sister	Far advanced; at home	11	15
11	♂	11	Plus		4/29	Incipient	18	Aunt	Incipient; home	11	12
12	♀	11	Plus		4/26	Incipient; bilateral	66	Father	Moderately advanced; pneumothorax	11	16
13	♂	11	Plus	Calcified hilus glands; no reinfection tuberculosis	4/25	Incipient	58	Sister	Incipient; at home	11	16
14	♀	11	Plus		1/29	Incipient	39	Mother	Incipient; pneumothorax	11	14
15	♂	12	Plus		12/21	Far advanced	120	Father	Died, 1932	12	22
16	♂	13	Plus		1/28	Incipient	24	Father	Incipient; at home	13	15
17	♀	13	Plus		6/27	Moderately advanced	29	Sister	Moderately advanced; in sanatorium	13	15
18	♂	14	Plus		10/25	Moderately advanced	76	Grandparent	Far advanced; in sanatorium	14	20
19	♀	14	Plus		5/28	Moderately advanced	28	Sister	Moderately advanced; pneumothorax	14	16
20	♀	15	Plus		4/28	Incipient	11	Mother	Incipient; in sanatorium	15	16
21	♂	16	Plus		7/25	Moderately advanced	11	Sister	Lost contact	16	17
22	♀	17	Plus		4/27	Moderately advanced	8	Sister	Died, 1929	17	18
23	♂	17	Plus		3/30	Moderately advanced	21	?	Moderately advanced; at home	17	19
24	♀	5	Plus	Ghon tubercle and calcified glands; no reinfection tuberculosis	6/22	Far advanced	24	Aunt, uncle, mother	Died, 1924	5	7
25	♂	8	Plus		6/23	Incipient	63	Father	Far advanced; in sanatorium	8	13
26	♂	9	Plus		11/23	Far advanced	84	Father, brother	Died, 1930	9	16
27	♀	10	Plus		10/24	Incipient	23	?	Bilateral; moderately advanced; at home	10	12
28	♀	11	Plus		4/26	Incipient	49	Father	Pneumothorax	11	15
29	♀	12	Plus		1/27	Moderately advanced	37	Father, mother	Far advanced; in sanatorium	12	15
30	♂	12	Plus		2/27	Moderately advanced	29	?	Far advanced; in sanatorium	12	14
31	♂	13	Plus		3/22	Moderately advanced	22	Uncle	Died, 1924	13	15
32	♂	13	Plus		2/26	Incipient	72	?	Incipient; at home	13	19
33	♀	13	Plus		11/22	Incipient	59	?	Lost contact	13	18
34	♀	13	Plus		11/26	Incipient	41	Uncle, aunt, grandmother	Moderately advanced; in sanatorium	13	17
35	♂	15	Plus		4/26	Moderately advanced	69	Father	Moderately advanced; in sanatorium	15	21
36	♂	16	Plus		3/22	Moderately advanced	9	Sister	Died, 1924	16	17

of these children are at home on bed rest therapy, five are on pneumothorax collapse therapy, twelve are in sanatoriums and eight have died. Contact with the remaining two patients has been lost.

Two typical cases selected from this general group illustrate the development of phthisis postdating and superimposed on a preexisting primary tuberculosis as it occurred in this entire series of thirty-six children. In the first case (34, table 4) a positive tuberculin reaction was present and four calcified Ghon tubercles were demonstrable by roentgen examination made in 1926 (fig. 1). If primary tuberculous infections confer immunity to consumption, multiple foci of primary disease should award this girl a place in the thoroughly protected class. She remained in good health for four years, but in 1930 a new subapical infiltration appeared on the right (fig. 2). Later this lesion progressed and now, after two years of sanatorium care, hers is classed as a moderately advanced case of consumption. Her multiple protective foci, therefore, have failed to protect her adequately.

The second case (29, table 4) selected from the group gave a positive Mantoux reaction and evidence by x-rays of a small Ghon tubercle at the right apex (fig. 3). As judged by roentgen studies, this patient had less extensive primary tuberculous pathologic changes to rely on for protection than had patient 34. Thirty-seven months later, a serious reinfection type of pulmonary tuberculosis involving the lower half of the right lung developed and now she is under sanatorium care for far advanced tuberculosis. This case illustrates that primary tuberculous infections with single demonstrable lesions cannot be relied on to protect one against consumption.

These two selected cases exemplify what has happened to each of the thirty-six children listed in table 4. Thus, approximately 43 per cent of a group of eighty-four consumptive patients seen at Lymanhurst provide definite proof that their primary tuberculous infections failed to prevent consumption from developing at some later date. This proportion of failure rises to more than 72 per cent, if to these are added the twenty-five children who had primary and reinfection (adult) types of the disease coexisting when first examined, and lack of detailed information for the remaining twenty-three cases of this group, I suspect, explains why this failure cannot be measured at 100 per cent, a value reported by Opie,[15] who by autopsy found lesions of primary tuberculosis in all cases presenting a reinfection type of tuberculosis (phthisis).

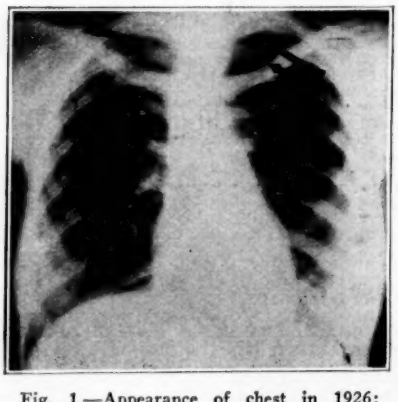


Fig. 1.—Appearance of chest in 1926: Arrows point to four Ghon tubercles. Tuberculin test positive.

In a study of tuberculosis in several thousand South Africans,[16] tuberculosis was found to develop with much greater frequency in tuberculin positive than in tuberculin negative native mine boys, and the evidence indicated that allergy was detrimental to these natives. At Lymanhurst to date, no case proved to be consumptive as a direct result of a first infection has been found, and I have yet to see a second crop of tuberculous lesions characteristic of primary tuberculosis develop in an allergic child. When new tuberculous lesions appear in the infected group they do not resolve, calcify and fail to produce symptoms as is characteristic of primary infections but tend rather to spread, cavitate and cause illness, as reinfection lesions commonly do. So far as our evidence goes, every infected child in whom new tuberculous lesions later develop becomes consumptive, and most if not all consumptive patients are derived by reinfection from the allergic group. If these observations, together with those of Opie, have revealed exactly what is needed to become a consumptive, I fear that immunization of children with BCG, which renders them allergic to tuberculin, may duplicate chance primary tuberculous infections by the S strain of human tubercle bacillus not only in failure to protect those uninoculated but also in preparing them to become consumptive at some later date if not protected from reinfections. If immunization with this attenuated organism alters the normal status of the uninfected human body in the same manner as that in which accidental initial contact infections do, some danger exists that a crop of unnecessary consumptive patients may be harvested by its use when these children reach puberty, and later. I hope these immunizations have not denied the recipients the ability to handle a primary infection with the ease that uninfected infants and children do. Several years of observation will be required before this point can be definitely settled.

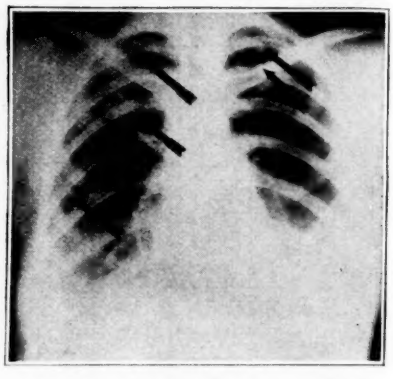


Fig. 2.—Appearance four years later: The four Ghon tubercles are still present and there is a new parenchymal infiltration in the first interspace anteriorly on the right.

DEBATABLE TERMINOLOGY

Two valuable pamphlets have been issued of late by the National Tuberculosis Association under the titles "Childhood Type of Tuberculosis" and "Diagnostic Standards," each of which was prepared and approved by groups that include several recognized authorities on tuberculosis. Although I have the utmost respect for the expert opinions contained therein, as well as the greatest admiration for the condensed accomplishment which these brochures present, nevertheless personal experiences tempt me to make inquiry concerning certain points with which they deal. This venture is made with a conviction that frank discussions which portray one's conceptions and interpretations bearing on debatable and unsettled scientific questions are justified. The following comments are offered, therefore, as representing what are considered as reasonable interpretations of observations and experiences obtained at Lymanhurst during the past decade.

15. Opie, E. L.: Pathological Evidence of First Infection in Association with Active Pulmonary Tuberculosis, Am. Rev. Tuberc. **10**: 249 (Nov.) 1924.

16. Tuberculosis in the Gold-Mining Industry, South African Institute for Medical Research, vol. 5, number xxx; reprinted in Bulletin de l'Union Internationale contre la Tuberculose **9**: 214 (July) 1932.

The term childhood type of tuberculosis, which in both pamphlets is clearly defined and recommended for use instead of infantile, juvenile or hilus tuberculosis, apparently is not entirely satisfactory, for this primary form of the disease does develop in adults as well as in children. Would it not be better, therefore, to designate cases of this type as "primary pulmonary tuberculosis" or "first infection type of pulmonary tuberculosis"? Since primary tuberculous infections not infrequently lodge in extrathoracic regions of the body, the appropriateness of classifying all such cases, regardless of where the focus of primary disease is located, under the general heading of "first infection types of tuberculosis" or "primary tuberculosis" suggests itself, under either of which titles, "primary pulmonary tuberculosis" (childhood type by definition in the brochures), "primary retroperitoneal lymph gland," "primary cervical gland," and other types of first infection may be subclassed conveniently as well as correctly, I believe.

The implication inherent in the term "adult type of tuberculosis" is contradicted by the observation that this form of the disease develops in children with appreciable frequency. The term "reinfection type of pulmonary tuberculosis" has certain points that favor its use. It places no age restriction as to when the disease may develop, and it is in agreement with an apparently correct statement, which is present in both pamphlets under consideration, to the effect that "the adult type of pulmonary tuberculosis is considered to be the result of a reinfection from an exogenous or endogenous source." In addition, this nomenclature permits a subclassification of various reinfection forms of the disease under the general heading of "reinfection types of tuberculosis."

PROTECTION FROM REINFECTION

On page 3 of the second and latest edition of the brochure entitled "Childhood Type of Tuberculosis" one finds the statement, "Children with minor tuberculous infections require no special prophylactic care." Since in my series of cases consumption developed eventually in eight children who previously were symptom free and had negative roentgen examinations but positive tuberculin tests, some justification arises, I feel, for advocating special protection from tuberculous reinfection for all children (and adults also) who are allergic to tuberculin, regardless of whether symptoms and primary lesions demonstrable by roentgen study are present or absent. In addition, without necropsy, the selection of patients with infections proved to be minor in significance is difficult.

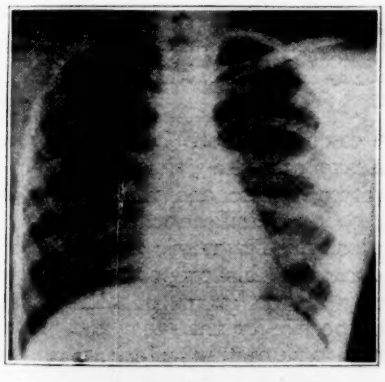


Fig. 3.—A Ghon tubercle at the extreme apex on the right in a child whose tuberculin test was positive.

INTERPRETATION OF A POSITIVE REACTION

In each brochure (page 7 in Childhood Type of Tuberculosis and page 13 in Diagnostic Standards) one reads: "Prolonged exposure of a child to a person with pulmonary tuberculosis usually results in infection, and excessive infection produces disease." And on page 9 of the first of the pamphlets the statement is made: "A positive reaction to tuberculin always means infection with the tubercle bacilli, but it does not necessarily indicate disease, or whether it is active or latent." If I interpret these statements correctly, they imply that conditions exist at times which permit tubercle bacilli to enter the human body and render it allergic thereafter to tuberculin without simultaneously producing a focus of disease in all cases. To me, this seems to be a rather remarkable statement, and I wonder whether it will withstand the test of investigation. I also wonder what clinical examination or tests reliably identify the individual who has been infected but who has acquired no disease from this experience. The careful postmortem studies of Ghon,[17] which revealed primary tuberculous lesions in from 90 to 95 per cent of infected children, located usually within the thorax, strongly indicate that first infections by tubercle bacilli result in the development of diseased areas with a regularity that closely approaches 100 per cent. In view of Ghon's observations, I think one is justified in assuming in general that every child who has a positive tuberculin reaction also has a focus of primary tuberculous disease located probably within the thorax. I also feel that in all cases, regardless of age, in which the Mantoux test is positive, a diagnosis of first infection type of tuberculosis is justified without confirmatory roentgen evidence. In my opinion, the roentgen examination of positive reactors should be made for the special purpose of determining, if possible, whether reinfection types of tuberculosis are present or absent, without according the roentgen study much authority in determining that the individual has or has not primary tuberculosis. This last question is settled by the tuberculin reaction, but incidentally the films may reveal the stage of evolution that the primary lesions, favorably situated and calcified for visualization, have reached at the time of the study.

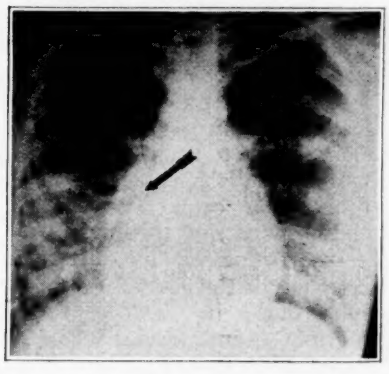


Fig. 4.—Appearance thirty-seven months later. The Ghon tubercle in still present in the right apex and a new extensive parenchymal infiltration has occurred throughout the right base.

THE CLASSIFICATION OF TUBERCULOSIS

The development of a scientific scheme for classifying the various first infection types of tuberculosis whose use forces no violation of any known facts relative to the disease process present, by compelling intrusion into the realm of the unknown, provides one of the important and perplexing problems now confronting those interested in tuberculosis. Undoubtedly the limit to which one may proceed with certainty in classifying such cases is determined by the facts that are known pertaining to the individual's disease. To discover these facts, various methods of examination are used, which singly and collectively rarely succeed in revealing the entire truth. The intracutaneous tuberculin, which is very specific as well as highly sensitive, when properly applied, apparently identifies practically

17. Ghon, Anton: Der primäre Lungenherd bei der Tuberkulose der Kinder, Berlin, Urban & Schwarzenberg, 1912.

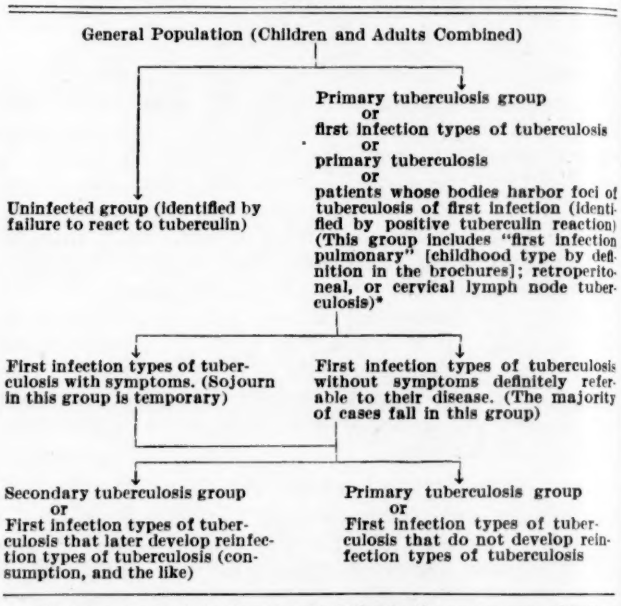
all infected individuals who, in virtue of the fact that their reactions are positive, can be classified in the general group of first infection types of tuberculosis. Beyond this point one cannot go in their grouping solely on the evidence that the tuberculin reactions are positive. Complete roentgen examinations of all regions of the body permit sifting the general group of first infection types of tuberculosis into the following three subgroups: 1. Cases with negative or normal roentgenograms; approximately 50 per cent of children with primary tuberculosis exclusively fall into this group. 2. Cases with suspicious or inconclusive and indefinite lesions suggestive of primary tuberculosis demonstrable roentgenographically; about 25 per cent of the cases fall into this group. 3. Cases with various types of lesions visualized with sufficient detail by roentgen examination to warrant their identification with reasonable certainty as being truly representative of foci of tuberculous origin; nearly 25 per cent of infected children fall into this group.

Ghon's painstaking investigations indicate that a resifting of the general group of first infection types of tuberculosis by careful gross and microscopic postmortem examinations, whose reliability for detecting tuberculous lesions present is definitely superior to that of the roentgen examination, would result in placing from 90 to 95 per cent (rather than only 25 per cent as justified on roentgen evidence) of these first infection cases in a class composed of individuals who have unmistakable, proved primary tuberculous lesions. The residue of this group classed separately on the basis that no lesions were found at necropsy may constitute a class whose exclusion is an artificial, unreal distinction arising from an omission imperfection in the autopsy technic used (failure to make microscopic examination of the entire body). I suspect, therefore, that progressive refinements in methods of examination will tend to reassemble the various subgroups into which one is inclined to place cases of primary tuberculosis on the basis of incomplete information obtained by employment of relatively crude methods (roentgen, for example) into one large general group of which each individual unquestionably harbors one or more foci of primary tuberculous disease.

To subdivide cases of first infection types of tuberculosis into several separate groups on the basis of what the x-rays are able to reveal may have some justification and value even though based on grossly incomplete information, provided the inference that individuals placed in one class differ fundamentally and significantly from those in other groups is true. No evidence is found in the follow-up observations made during the past decade at Lymanhurst to indicate that cases presenting single or multiple large partially or heavily calcified scars show a definitely greater tendency to manifest symptoms or impairment in health referable to primary tuberculosis, or to suffer a different ultimate fate, than do infected children who have small or no lesions demonstrable during life. As far as I have been able to ascertain, all cases of primary tuberculosis are basically identical except that a few cases (from 3 to 4 per cent of infected children) with acute diffuse primary tuberculous pulmonary infiltrations exhibit symptoms which on this basis temporarily distinguish them for a time from the general group of infected cases. After these acute manifestations subside, patients with first infection types of tuberculosis are clinically indistinguishable from one another as a rule and remain so until the day arrives when reinfections transfer a certain percentage of them to the consumptive group. On the whole, therefore, I see no fundamental reason as well as scant opportunity for attempting to reclassify cases of primary tuberculosis in any great detail.

On careful consideration of the subject, it seems difficult to classify with certainty the 10,000 children examined at Lymanhurst according to any scheme that provides several separate groupings for cases of primary tuberculosis. The limit established by the point dividing the known from the unknown facts concerning the individual case greatly restricts elaboration. The information gleaned from tuberculin tests, repeated roentgenograms and physical examinations continued over a period of several years on these children, however, seems to permit their classification according to the plan outlined in table 5.

TABLE 5.—*Classification of Tuberculosis*


General Population (Children and Adults Combined)
Uninfected group (identified by failure to react to tuberculin)
Primary tuberculosis group or first infection types of tuberculosis or primary tuberculosis or patients whose bodies harbor foci of tuberculosis of first infection (identified by positive tuberculin reaction) (This group includes "first infection pulmonary" [childhood type by definition in the brochures]; retroperitoneal, or cervical lymph node tuberculosis)*
First infection types of tuberculosis with symptoms. (Sojourn in this group is temporary)
First infection types of tuberculosis without symptoms definitely referable to their disease. (The majority of cases fall in this group)
Secondary tuberculosis group or First infection types of tuberculosis that later develop reinfection types of tuberculosis (consumption, and the like)
Primary tuberculosis group or First infection types of tuberculosis that do not develop reinfection types of tuberculosis

* Note may be made in these cases relative to the appearance of lesions found, but assumptions that visualized conditions provide reliable evidence that these cases differ basically and require grouping separate from others in the general first infection group apparently are unwarranted. The classification outlines roughly the stages of evolution of tuberculosis as it occurs in man.

The Lymanhurst cases do not, however, seem satisfactorily amenable to separate grouping into the observation, the manifest disease and the apparently healed groups proposed for classification of the childhood type of tuberculosis in Diagnostic Standards. I feel that in accordance with this proposal my entire series belongs properly in the group of observation cases, in view of the possibility that they may later develop some reinfection type of tuberculosis. For this reason they never cease to be observation cases. Some justification also exists for placing our entire group of cases in the manifest disease class, for the reason that I suspect necropsies, for instance, would make manifest the diseased areas actually present which escape detection by roentgen and other examinations combined. I am reluctant also to exclude these infected children from the manifest disease group, owing to the conviction I entertain that the positive tuberculin reaction alone, and without additional confirmatory evidence, has made the presence in their bodies of one or more foci of primary disease indirectly manifest. Furthermore, I fail to comprehend how one can justly separate these children into observation and manifest disease cases on the basis either that the potentialities inherent

in their discovered and undiscovered areas of disease differ in various patients or that the alterations of the normal immune status produced in their bodies by first infections are essentially dissimilar.

At no time have I found a case that could be classed as apparently healed with any degree of assurance that the classification is correct. Certain Lymanhurst children with primary tuberculosis exclusively have remained in apparently normal health for various periods up to ten years before consumption finally developed (table 5) and to exonerate their old primary foci of responsibility for the newly developed disease seems impossible. This experience shows how treacherous a presumptive diagnosis "apparently healed" may prove to be. Microscopic studies also indicate that to classify a case of primary tuberculosis during life as "apparently healed" may be erroneous in many instances. For example, Professor Robertson of the Mayo Clinic (cited by Myers [18]) says: "I am very greatly impressed with the microscopic study of these apparently healed lesions. Very many of them show evidence of some activity histologically and I am steadily strengthened in the opinion that the tuberculous lesion in most instances constitutes a menace of renewed activity as long as the individual may live." Professor Robertson is inclined to believe that the foregoing statement applies particularly to the first infection type of tuberculosis, including the involvement of the lymph nodes at the root of the lungs. Dr. Robertson also states that he frequently finds calcium deposits, caseous material and activity histologically all in one lesion. Apparently little is to be gained by providing a special group for apparently healed patients who, like their companions placed elsewhere in observation and manifest disease classes in Diagnostic Standards, continue throughout life to need close observation and to be confronted with the common danger of developing consumption if successfully reinfected from exogenous or endogenous sources. I feel, therefore, that the apparently healed group should be deleted from Diagnostic Standards, not only for reasons previously mentioned but also on the basis of the truth I feel exists in the statement made in this brochure that "cases with apparently healed lesions may have other concealed caseous nodes from which tubercle bacilli may be disseminated."

TREATMENT FOR PRIMARY TUBERCULOSIS

Opinions vary as to how cases of primary tuberculosis should be treated. Open air or open window schools, preventoriums and summer camps or their equivalent are recommended in the brochures for cases under observation. Lymanhurst is no longer an open window school to the degree it was ten years ago. Now, instead of providing wide open windows and cool rooms that required wearing eskimo wraps, windows are only partially raised, sufficient merely to provide an atmosphere that is comfortable with respect to temperature, moisture and circulation. This change was made when experience indicated that the air requirements of a child with primary tuberculosis were not essentially different from those of uninfected children. Summer camps provide a pleasant outing for infected children, but I have failed to discover anything of additional basic curative value in them. Admission to preventoriums unfortunately separates a child from a home environment; thus this type of treatment must afford something needed but unobtainable at home to be justified. Exactly what this need unobtainable outside a preventorium consists in is not clear to me.

For the manifest disease cases, sanatorium care or its equivalent is recommended in Diagnostic Standards whether symptoms or physical signs are present or absent. The sanatorium can give these children all forms of treatment needed for the first infection type of tuberculosis, which, when complete, include a well balanced liberal diet, adequate vitamin intake, alpine light exposures (?) and rest. Many sanatoriums and preventoriums, however, fail to give the infected child the most important of all needs; namely, protection from exposure to consumptive patients. Very few institutions practice rigid contagious technic and exclude consumptive patients from their professional and nonprofessional staffs. In my opinion, ideal conditions exist if up-to-date diagnostic centers and certified homes rather than open air schools, summer camps, preventoriums or sanatoriums are provided. Diagnostic observation centers and certified homes afford means for diagnosis as well as ample facilities for individual treatment in a safe and wholesome environment without necessitating the omission of any therapeutic measure proved to be of value in the treatment of primary tuberculosis. From the experience at Lymanhurst, I have been unable to find where need exists for sanatorium treatment of children with first infection types of tuberculosis. I think Lymanhurst discharges its obligation fully in the care of these children without the aid of an institution of this type. To me, the use of certified homes seems superior to resorting to institutional care.

The foregoing comments portray what seem to be reasonable interpretations of observations made possible by follow-up studies extending over a period of several years on a few thousand children afflicted with primary tuberculosis. In the light of this experience, which I trust has not been misleading, I believe that some revision of the two brochures now being issued by the National Tuberculosis Association will enhance their value.

CONCLUSIONS

1. The present paper is based on observations on eighty-four children found in a series of more than 10,000 cases examined and followed up during the past decade at Lymanhurst. These eighty-four children included certain patients who had reinfection pulmonary tuberculosis (consumption) when first examined, as well as other children in whom phthisis developed during the period of observation.

2. Of this group, thirty-six children (approximately 43 per cent) had primary tuberculosis exclusively for various periods up to ten years and then developed the reinfection type of pulmonary tuberculosis (consumption). Primary tuberculous infections (which produce allergy to tuberculin), therefore, do not prevent consumption from developing at some later date.

3. Twenty-five children (approximately 30 per cent) had primary or reinfection pulmonary tuberculosis coexisting when first examined. I interpret these observations as contributing circumstantial evidence that initial infections by Mycobacterium tuberculosis do not confer an immunity that prevents consumption. Apparently the opinion that infected individuals are protected must be abandoned until indisputable proof to support this contention is found.

4. At Lymanhurst, no child allergic to tuberculin has been found during the past decade in whom a second crop of lesions typical of primary tuberculosis has

18. Myers, J. A.: The Tuberculin Test, Minnesota Med. **15**: 26 (Jan.) 1932.

developed. Apparently the human body can experience the benign primary form of the disease only once.

5. When new tuberculous infiltrations appear in the lungs of children who previously had positive tuberculin reactions, these newly developed lesions are roentgenologically and clinically characteristic of reinfection pulmonary tuberculosis (phthisis). Apparently, patients with primary tuberculosis become consumptive if reinfections occur in dosage sufficient to produce intrapulmonary lesions. This applies to cases of primary tuberculosis whether symptoms and lesions demonstrable roentgenographically are present or absent.

6. Follow-up studies over a period of ten years at Lymanhurst indicate that primary tuberculous infections are distinctly detrimental in that they alter the normal resistance to tuberculosis present in the uncontaminated human body in such a manner that, instead of again being able to experience the benign primary type of tuberculosis, the patient is doomed thereafter to develop consumption if successfully reinfected from exogenous or endogenous sources. The only method by which consumption can be prevented is through the prevention of tuberculous infections.

7. Active immunization against tuberculosis with attenuated bacilli may not be a safe procedure if this method immunologically duplicates the changes that accidental human contact infection produces.

8. A plan of classification for various types of tuberculosis together with comments relative to revisions in two brochures distributed by the National Tuberculosis Association is submitted, each of which seems to conform with conservative interpretations of the observations made at Lymanhurst during the past ten years.

953 Medical Arts Building.

THE USE OF AUTOLYZED LIVER IN THE TREATMENT OF PERNICIOUS ANEMIA

A PRELIMINARY CLINICAL REPORT

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AND
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In a previous communication we [1] reported the results of several observations, suggesting that autolysis markedly increases the potency of liver in the treatment of pernicious anemia. Further work has substantiated the preliminary observations, and, because of their important relation to practical liver therapy and theories regarding the possible nature of the beneficial agent, the results of treatment of thirteen cases of pernicious anemia with autolyzed liver are here reported.

PREPARATION AND METHOD OF ADMINISTRATION

Fresh beef liver obtained from the slaughter house was ground and fiftieth-normal hydrochloric acid was added in the proportion of 1,000 Gm. of minced liver to 5,000 cc. of fiftieth-normal hydrochloric acid. Twenty-five cubic centimeters of chloroform per kilogram of liver was added as a preservative. The mixture was thoroughly shaken, placed in an incubator at 37 C. and allowed to undergo autolysis for an average period of ten days. It was shaken daily during the period of incubation. At the end of ten days the undigested material was removed by filtration. This filtrate contains the active material and was used as such or after concentration to varying degrees even to the point of dryness. In several cases this whole unfractionated filtrate was used as indicated in the accompanying table. During the process of concentration, which was conducted under reduced pressure to keep the temperature below 55 C., a gradual precipitation of the less soluble materials occurred. Repeated filtration at various stages thus provided a simple method of fractionation. We have made observations on the chemical nature and therapeutic activity of the whole material and of the various fractions, administered orally with fruit or vegetable juices. The present report deals primarily with the therapeutic activity of the whole unfractionated material contained in the original filtrate. Preparations of the most highly concentrated solutions were made for intramuscular use by adjusting the reaction to neutrality and sterilizing it by boiling and Berkefeld filtration. For comparison, dosage was expressed in terms of grams of liver from which the material was prepared. The autolyzed liver was administered in cases of pernicious anemia otherwise untreated, and observations were made on the reticulocytes, erythrocytes, hemoglobin, platelets, bleeding and coagulation time. Its effects on the other features of pernicious anemia such as neurologic symptoms, appetite, strength and weight were also determined. When possible, the patients were hospitalized and the laboratory data obtained, each hospital using its regular technic. In some instances the patients were under our observation long enough for us to observe only the initial response; in others we were able to note also the effect of maintenance treatment.

COMMENT

The great individual variation in the dosage requirement in pernicious anemia is well known and has been clearly stated recently by Minot.[2] However, for purposes of comparison, the following amounts of liver would seem to represent the approximate requirement in uncomplicated cases: Riddle and Sturgis [3] report that the equivalent of approximately 3,000 Gm. of liver, when fed in a single massive dose, was required to induce a maximal reticulocyte response. The generally accepted dosage required to restore the blood levels to approximately normal is about 250 to 300 Gm. of liver pulp daily. When liver extracts [4] are given orally, from 400 to 600 Gm. of liver equivalent represents the daily requirement. When intramuscular preparations are used, it is customary to administer about 400 Gm. of liver equivalent in the first ten days, followed by a maintenance dosage of about 100 Gm. each week.[5] The intravenous dosage requirement appears to be approximately the same as the intramuscular.[6]

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In this investigation the following physicians cooperated by supplying clinical material: Drs. J. D. Heard, A. P. D'Zmura, H. B. Gardner, G. O. Smith, J. H. Barach, Glenn Heilman, Marlin Heilman, E. S. Duncan, W. B. Gordon, F. A. Evans, G. C. Weil, G. J. Kastlin, W. A. Nealon, R. M. Entwisle, E. P. Griffiths, J. S. Logan, James Balph, E. W. Willetts, H. G. Schleiter and R. R. Snowden.

1. Herron, W. F., and McEllroy, W. S.: Autolyzed Liver Therapy in Pernicious Anemia, Science **76:** 127 (Aug. 5) 1932.

2. Minot, G. R.: The Importance of the Treatment of Pernicious Anemia on a Quantitative Basis, J. A. M. A. **99:** 1906 (Dec. 3) 1932.

3. Riddle, M. C., and Sturgis, C. C.: The Effect of Single Massive Doses of Liver Extract in Pernicious Anemia, Am. J. M. Sc. **180:** 1 (July) 1930.

4. Murphy, W. P.: The Parenteral Use of Liver Extract in Pernicious Anemia, J. A. M. A. **98:** 1051 (March 26) 1932.

5. Murphy,[4] Connery, J. E., and Goldwater, L. J.: Parenteral Use of Liver Extract in Treatment of Pernicious Anemia, J. A. M. A. **98:** 1060 (March 26) 1932.

6. Fouts, P. J., and Zerfas, L. G.: Use of Liver Extract Intravenously, Arch. Int. Med. **50:** 27-36 (July) 1932.

It will be observed that in the later cases here reported reticulocyte responses, followed by erythrocyte and hemoglobin increases, occurred after the ingestion of 400 Gm. of autolyzed liver during the first ten days of treatment, followed by a maintenance dosage of material derived from 100 Gm. of liver each week. This indicates that the autolyzed liver, when given by mouth, has a potency approximating that of other liver preparations when given intramuscularly or intravenously (case 13). In this connection, it is of interest that in several cases we have administered the autolyzed liver intramuscularly and have obtained from material derived from 10 Gm. of liver a response equal to that obtained from other preparations representing 100 Gm. The patients in our series who showed the best response were those who received by mouth the crude unfractionated filtrate. This was especially noticeable in the degree of improvement of the neurologic symptoms, weight, strength and blood platelets. Although the highly fractionated material induced an initial response, a sustained rise in cells and hemoglobin to the normal levels was best obtained when the whole filtrate was used. We believe, therefore, that too high a degree of fractionation may be undesirable in the preparation of liver extracts. At present there is a tendency to replace oral therapy by the parenteral use of highly refined preparations. We agree with Conner[7] and Musser that this is irrational as a routine method and should be used only when oral therapy is not practical. It is apparent that the smaller dosage of autolyzed liver, owing to its greater potency, carries with it marked economic advantages.

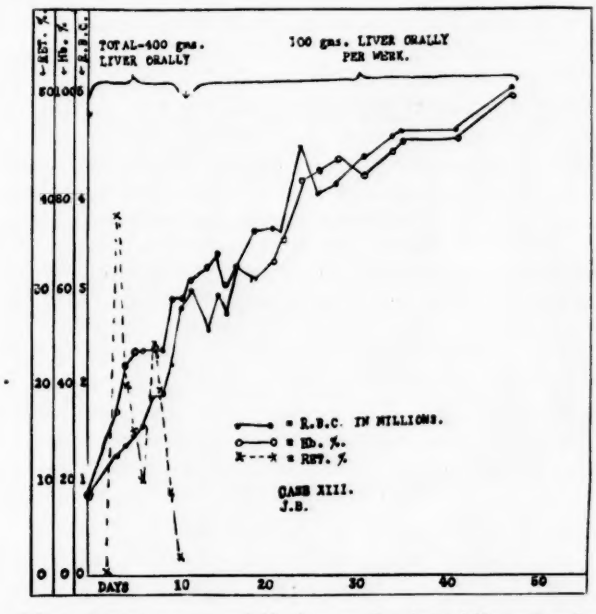
Effect of Oral Administration of Autolyzed Liver

Case	Red Blood Cells, Millions	Hemoglobin, per Cent	Days After Treatment*	Reticulocytes, per Cent	Dosage, Gm. of Autolyzed Liver†
1	1.70	34	0	1	600 A
	....	..	5	11	
	2.04	60	37	..	250 B
	2.36	65	58	..	250 B
	2.17	70	71	..	
2	2.89	63	0	1	810 A in 4 days
	....	..	8	13	
	3.32	86	35	1.5	230 B
	....	..	36	..	230 B
	3.49	94	59	..	
3‡	0.73	22	0	1	750 A in 3 days
	1.30	36	9	22	
	2.40	64	33	..	430 B in 2 days
	2.70	70	57	..	
	....	..	60	..	60 I. M. in 6 days
	....	..	120	..	150 B total from day 120 to 150
	4.60	100	170	..	200 B total from day 155 to 170
4	1.80	45	0	1.5	450 B in 2 days
	....	..	6	8	
	3.20	68	10	2.5	800 B in 4 weeks
	....	..	41	..	120 A
	3.10	62	63	..	
	....	..	75	..	480 A in 10 days
	4.60	98	106	..	
5	1.30	31	0	1	400 B in 2 days
	....	..	7	20	
	1.70	38	14	..	
	1.10	29	16	..	
	....	..	18	2	5 I. M.
	....	..	20	2	7.5 I. M.
	0.97	29	25	20	250 B
	1.80	50	32	..	250 B
	2.80	59	42	..	250 B
6	0.95	21	0	1	600 B in 2 days
	0.75	21	4	0.5	
	....	..	6	10	
	....	..	7	20	
7	3.10	70	0	2	400 B in 2 days
	....	..	6	8	
	3.90	84	10	..	
	4.40	94	17	..	
8	2.50	35	0	..	20 I. M. in 20 days
	2.80	35	5	..	
	3.00	45	8	..	
	4.10	75	20	..	
9	2.80	65	0	..	60 A
	3.00	80	19	..	60 A
	3.60	85	29	..	
	3.80	85	43	..	100 A per week
	3.50	90	62	..	
	4.10	90	84	..	
	4.40	95	105	..	
10	3.18	72	0	..	100 A
	4.41	79	18	..	
	3.60	72	54	..	100 A per week
	4.10	82	71	..	
11	3.60	76	0	..	105 A per week
	4.60	87	12	..	
	4.40	92	18	..	
	4.80	98	23	..	
	5.10	104	31	..	
12	3.04	81	0	..	100 A
	4.20	90	36	..	50 A
	4.30	90	50	..	100 A per week
	4.50	94	56	..	
	4.80	100	71	..	
13	0.82	17	0	1.4	400 A in 10 days
	1.30	34	1	38	
	1.80	47	6	24	
	3.00	62	10	2	100 A per week
	3.60	71	20	..	
	4.00	85	23	..	
	4.70	92	31	..	
	4.80	95	42	..	
	5.10	100	47	..	

* In this column, zero (0) day indicates the day treatment was started.

† In this column the letter A indicates that the unfractionated material was given; the letter B indicates that the highly concentrated and fractionated material was given; the numeral indicates the number of grams of fresh liver from which the autolyzed liver was prepared; I. M. indicates intramuscular injection.

‡ Owing to her critical condition, this patient received a transfusion of 500 cc. of blood on day 5 and 2 cc. of liver extract 343 (N. N. R.) parenterally on days 6 and 7.



Effect of treatment on red blood corpuscles, hemoglobin and reticulocytes in case 13.

In our description of the method we indicated that the material was concentrated under reduced pressure. This was done to prevent the temperature from rising above 55 C., as the potent material appeared to be partially destroyed by prolonged heating above this point. Although the dried material can be administered more conveniently, concentration is not essential, as the crude unconcentrated filtrate was found to be palatable and effective.

We have under way a detailed investigation of the chemical and therapeutic properties of the various fractions obtained as described. Studies are also being made of materials prepared by the autolysis of other glands

7. Conner, H. M.: Injection of Liver Extract in the Treatment of Pernicious Anemia, J. A. M. A. **99**: 614 (Aug. 20) 1932.

and tissues. The results of these investigations in pernicious anemia and other conditions will be reported later.

CONCLUSIONS

1. Autolysis markedly increases the potency of liver.
2. The oral dosage requirement of autolyzed liver approaches the intramuscular requirement of other liver preparations.
3. The method described provides a simple means of fractionation, facilitating study of materials contained in liver and other organs and tissues.

HYPOPROTEINEMIA

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In 1891, Csatáry [1] showed that there was a decrease in the total plasma proteins in certain forms of nephritis and that the albumin fraction was lower than the globulin. The significance of this observation was lost until Epstein,[2] in a series of studies, confirmed it and found it applicable only in those forms of renal disorders then designated as "nephrosis," a term coined to connote diseases of the kidney that are not "inflammations." The dominant clinical evidence of "nephrosis" is dropsy. Epstein held that the dropsy was the result of the loss of protein by way of the kidneys and was associated with hypoproteinemia. In order to explain the relation of the hypoproteinemia to the dropsy, he applied the neglected law of Starling. Starling showed that the exchange of water between the blood and the body tissues depended on a balance between the colloidal osmotic pressure of the plasma proteins and the hydrostatic pressure within the capillaries. Epstein's speculations, after many vicissitudes, have now been confirmed by precise observations and have explained many clinical observations on dropsies other than the "nephrotic" which had hitherto been regarded as obscure in origin.

CLINICAL CONDITIONS ASSOCIATED WITH HYPOPROTEINEMIA

Hypoproteinemia may result from:

A. Loss of protein:
   1. By way of the kidneys.
   2. By the intestinal tract.
   3. By anasarca.
   4. By loss of blood.

B. Deficient formation or destruction of plasma protein.

C. Insufficient intake of protein.

HYPOPROTEINEMIA OF RENAL ORIGIN

The term "nephrosis," which was supposed to clarify the classification of renal disorders, has failed to do so and has rather confused the issue. At present "nephrosis" is best interpreted as a syndrome characterized by marked albuminuria, general edema, hypoproteinemia with inversion of the albumin-globulin ratio, lipemia and, usually, a lowered basal metabolism. Since in many instances the blood pressure was normal, Epstein originally conceived the underlying pathologic lesion as a nephrosis in its original sense; namely, a parenchymatous "degeneration," a non-inflammatory process.[3] Indeed, in many cases that came to autopsy the degenerative lesion known as lipoid nephrosis was found. Further observation showed that the syndrome had other backgrounds in morbid anatomy. In fact, pure lipoid change was the least common lesion associated with this syndrome; by far the most common was a subacute or chronic glomerulonephritis and, less frequently, an amyloid kidney. Without a consistent background in pathology, nephrosis loses its individuality as a disease.

Despite the lack of a strict clinical and pathologic correlation, these anatomic lesions have one thing in common; namely, a loss of protein by way of the kidneys. The amount of albumin lost by the urine may vary considerably from 1 to 60 Gm. of protein per liter a day (Leiter [4]), of which, according to Hiller, Van Slyke and McIntosh,[5] from 85 to 90 per cent is albumin while only from 10 to 15 per cent is globulin. How great a loss of renal protein is requisite to produce a hypoproteinemia is difficult to determine, but Linder, Lunsgaard and Van Slyke [6] believe that no appreciable hypoproteinemia develops with a loss of less than 1 Gm. of protein per liter a day. Prognostically, therefore, a patient who passes only a so-called trace of albumin in the urine will not develop the nephrotic syndrome.

In regard to lipoid nephrosis, it is not certain how far the renal lesion is the cause or the result. The lipoid infiltration is probably the result of the lipemia, for such infiltrations have been produced not only in experimental plasmapheresis by Leiter,[7] Barker and Kirk,[8] Shelburne and Egloff,[9] and Kumpf,[10] in which the blood lipoids increase, but also in the nephrotic glomerulonephritides in which lipemia is present. No consistent observations are recorded as to how far the degeneration of the renal epithelium is the cause or consequence of the loss of protein. The fact that albuminuria is not caused by hypoproteinemias of extrarenal origin or in plasmapheresis indicates in all probability that the degeneration is not the result; nor can one unqualifiedly say that such degenerations are the cause because purely symptomatic therapy by the high protein low fat diet recommended by Epstein frequently cures the malady. It is for this reason that Epstein regarded the disease as metabolic in origin and suggested the term "diabetes albuminuricus" as best expressing the nature of the disease.

The degree of hypoproteinemia in the nephrotic syndrome varies, reaching as low as 2.5 mg. per hundred cubic centimeters of plasma (normal 7.5 per cent), and there is usually a fair correlation between the amount of protein lost in the urine and the blood proteins. The critical level at which edema becomes manifest depends not so much on the total protein as on the albumin fraction. Since about nine tenths of the total urinary loss is albumin, the albumin fraction in the blood becomes considerably reduced, so that the normal albumin-globulin ratio is lowered and may even be

1. Csatáry, A.: Deutsches Arch. f. klin. Med. **48**: 358, 1891.
2. Epstein, A. A.: Am. J. M. Sc. **154**: 638 (Nov.) 1917.
3. Since the term "inflammation" varies so widely in its interpretation, it seems to me that it would clarify matters considerably to drop the term entirely and substitute simply descriptions of the morphologic reactions to injury. This would also eliminate the unsatisfactory term "degeneration."
4. Leiter, Louis: Medicine **10**: 135 (May) 1931.
5. Hiller, Alma; Van Slyke, D. D., and McIntosh, J. F.: J. Clin. Investigation **4**: 235 (June) 1927.
6. Linder, G. C.; Lunsgaard, C., and Van Slyke, D. D.: J. Exper. Med. **39**: 887 (June) 1924.
7. Leiter, Louis: Proc. Soc. Exper. Biol. & Med. **26**: 173 (Nov.) 1928.
8. Barker, M. H., and Kirk, E. J.: Experimental Edema (Nephrosis) in Dogs in Relation to Edema of Renal Origin in Patients, Arch. Int. Med. **45**: 319 (March) 1930.
9. Shelburne, S. A., and Egloff, W. C.: Experimental Edema, Arch. Int. Med. **48**: 51 (July) 1931.
10. Kumpf, A. E.: Experimental Edema and Lipemia Produced by Repeated Bleeding, Arch. Path. **13**: 415 (March) 1932.

inverted. The lipoids in the blood are nearly always increased and may even pass into the urine as double refractile bodies.

The following case of hypoproteinemia of renal origin is reported because it demonstrates the value of determining the total plasma protein in the interpretation of the clinical observations:

CASE 1.—R. B., a woman, aged 29, admitted to Dr. B. S. Oppenheimer's service, March 4, 1932, had rheumatism ten years and two years previously. Five months before admission she had fever, dyspnea and chills. Two weeks before she noted tenderness of the finger tips. Examination revealed an aortic insufficiency with a large heart. The liver was three fingerbreadths below the free border; the spleen was palpable. There was marked pitting edema of the legs and over the sacrum, and there was fluid in both sides of the chest. The hemoglobin was 45 per cent. The urine boiled almost solid with albumin and contained many hyaline and granular casts. The blood culture was positive for Streptococcus viridans, and the diagnosis of subacute bacterial endocarditis was established. But the interpretation of this case was not entirely clear. The anasarca and large liver suggested the presence of a myocardial insufficiency, a circumstance highly exceptional in active subacute bacterial endocarditis. This suspicion was apparently confirmed by the electrocardiographic tracings, which showed in addition to a left ventricular preponderance an inverted T_1 and a PR interval of 0.21 second. One week later the PR interval was 0.25 and in the following week was 0.22, intervals that were above the upper limits of normal. Clinically, however, the patient showed none of the usual accompaniments of myocardial failure, and another explanation for the edema was sought. In view of the intense albuminuria, a hypoproteinemia was looked for and found to be 5.4 Gm. per hundred cubic centimeters (Wu method), of which the albumin was 3.4 per cent and the globulin 2.0 per cent. The cholesterol was 170 mg. To ascertain whether the edema was due to the hypoproteinemia, the patient was placed on a high protein diet. In a few days the edema disappeared and a blood plasma protein determination at this time showed a total protein of 6.1 per cent, of which the albumin was 4.3 and the globulin 1.8.

HYPOPROTEINEMIA DUE TO LOSS OF PROTEIN FROM THE INTESTINAL TRACT

Edema occurring in the course of severe gastroenteritis with diarrhea in infants is not uncommonly observed.[11] The cause of the edema was obscure to these writers,[11] whose observations antedated present knowledge of the relation of low plasma protein to edema. Ashby, nevertheless, recognized that the edema disappeared on a diet rich in protein and poor in carbohydrate. Quantitative studies on the blood plasma proteins in cases of diarrhea with edema are up to the present very few. It is therefore pertinent to report the following cases:

CASE 2.—Mrs. G., aged 50, a patient of Dr. Asher Winkelstein, to whom I am indebted for the privilege of reporting this case, had three years previously had a severe attack of nonspecific ulcerative colitis with fever and bloody diarrhea, which lasted six months. She was well until September, 1931, when the disease recurred. At this time she developed a large ischiorectal abscess, which broke into the rectum, so that the patient had incontinence with constant drainage of bloody and purulent stool. In the course of a few months she became progressively worse. She lost weight, and the number of movements a day averaged between ten and twenty. Toward the end of the illness she developed a pitting edema of the lower extremities and back. Her total serum proteins at that time were 5.2 per cent, of which the albumin fraction was 3.1 per cent and the globulin 2.1 per cent. She died some weeks later of toxemia and exhaustion.

CASE 3.—R. P., a woman, aged 24, admitted to Dr. B. S. Oppenheimer's service, April 18, 1931, had had a diarrhea for seven months, which became bloody in the past week. The stools were frankly bloody and very frequent. The sigmoidoscope showed an ulcerative colitis. Roentgen examination revealed no haustra in the entire colon. The patient had an irregular fever. June 23, a pitting edema of the feet was noticed. The total blood serum protein taken on this date was 4.5 per cent, of which the albumin was 2.6 per cent and the globulin 1.9 per cent. The cholesterol was 210 mg. per hundred cubic centimeters. She was put on a high protein diet and within two weeks the edema disappeared. The blood protein at this time was 5.6 per cent, with the albumin 3.4 per cent and the globulin 2.2 per cent. July 13, the total protein was 6 per cent, of which the albumin was 3.7 per cent and the globulin 2.3 per cent. The patient apparently improved for a while, but in August she had a relapse; an ileostomy was done, but the patient died four days later.

CASE 4.—F. P., a woman, aged 48, admitted to Dr. B. S. Oppenheimer's service, Nov. 7, 1931, had had three operations on the rectum, eighteen years, five years and five months before. She had a diarrhea of many years' duration, occasionally tinged with blood. She said that her legs, the lower part of the back and the abdomen had been swollen for the past three months. She revealed an extensive stricture of the rectum with marked perirectal thickening, and roentgenograms showed a communication between the ileum and the sigmoid flexure. There was marked pitting edema of the legs and back and some ascites. The urine showed consistently heavy quantities of albumin. The edema and the ascites were ascribed to a hypoproteinemia the result of either long standing diarrhea or amyloidosis. The congo red test, which showed only 29 per cent retention, seemed to point against amyloidosis. At all events the total plasma protein, November 10, was 5.6 mg. per hundred cubic centimeters, of which the albumin was 2.0 per cent and the globulin 3.6 per cent, an almost complete inversion. The proteins were increased in the patient's diet with subsidence of the edema, and on December 7, the total proteins were 5.8 mg. per hundred cubic centimeters, of which the albumin was 2.0 per cent and the globulin 3.8 per cent. A colostomy was done, Jan. 9, 1932, but the patient died one week later. The autopsy showed a proctitis and periproctitis with multiple fistulas between the sigmoid flexure and the ileum. Both kidneys showed amyloid degeneration.

It was impossible in this case to prove to what extent the hypoproteinemia was the result of the loss of protein through the stool or by way of the amyloid kidneys. At all events the patient lost protein through both sources and, although the total plasma protein was not greatly below the normal limits, the albumin fraction was unusually low.

To what extent the loss of proteins in patients with diarrhea is the result of the exudation of serum into the intestine and how much is due to the loss of blood protein that usually accompanies an ulcerative colitis is, for clinical purposes, unimportant. That the loss of blood alone can account for hypoproteinemia is evidenced by some cases which I shall report in a subsequent portion of the paper, in which I shall describe hypoproteinemia resulting from repeated small bleedings into the intestine from gastric and duodenal ulcers.

HYPOPROTEINEMIA IN ASCITES

Although serum in the abdominal cavity is, strictly speaking, within the body, as far as the economy is concerned it is extracorporal. The fact that hypoproteinemia occurs in the presence of large ascitic collections is well known. One sees it repeatedly in the ascites following cirrhosis of the liver. I saw a fine example in a case of Gaucher's disease with coarse nodular cirrhosis. One wonders in such a case whether the edema of the lower extremities, a not uncommon

11. Wagner, E.: Deutsches Arch. f. klin. Med. **41**: 509, 1887. Chapin, H. D.: Arch. Pediat. **31**: 5, 1914. Hume, W. E.: Brit. M. J. **2**: 478 (Sept. 2) 1911. Ashby, H. T.: Practitioner, May, 1914, p. 686.

finding in cirrhosis of the liver with ascites, is not due to the hypoproteinemia rather than to the compression of the intra-abdominal veins, the explanation hitherto offered. It would be interesting to note the effect of a high protein diet on the edema of the lower extremities in such a case.

HYPOPROTEINEMIA DUE TO LOSS OF BLOOD

It is obvious that any appreciable loss of blood is followed by hypoproteinemia. Coincidentally there is a lipemia.[12] When plasmapheresis is performed, edema is noted when the plasma proteins are reduced to 3 Gm. per hundred cubic centimeters.

Clinicians are familiar with the general or local edema that is occasionally seen in severe chronic anemic states. The cause of this edema has been ascribed to various factors: to the hydremic state of the blood, to an increased capillary permeability, and to myocardial insufficiency; but in view of present knowledge concerning the sequential relation of edema to hypoproteinemia, it seemed pertinent to determine whether hypoproteinemia occurred in edematous anemic states. As far as I can gather, there has been no reported systematic study of this work. The following case reports will therefore be of interest:

CASE 5.—C. W., a man, aged 49, admitted to Dr. B. S. Oppenheimer's service, Feb. 23, 1932, had been in Mount Sinai five years previously for abdominal pain and a mass (?) in the right upper quadrant. The hemoglobin at that time was 80 per cent. A roentgenogram of the gastro-intestinal tract and the barium enema were reported as showing a distorted duodenal bulb. After a few days the patient was discharged feeling well. The day before the present admission he felt weak and dizzy and vomited a large quantity of blood. He had also passed blood by rectum three times. The hemoglobin was 32 per cent. The liver was palpable just below the free border. The spleen was just palpable. With rest and a Sippy diet he stopped bleeding and the guaiac reaction in the stool became negative. February 29, the hemoglobin was 38 per cent, the red blood count was 2,510,000, and the white blood count was 5,050. On March 11, edema of the feet appeared with some puffiness of the face and some ascites. The blood plasma protein taken three days later showed 5.4 per cent Gm. of protein, of which the albumin was 3.5 per cent and the globulin 1.9 per cent. The patient was put on a high protein diet and the blood plasma rose only to 5.5 Gm. per hundred cubic centimeters, with 3.3 per cent albumin and 2.2 per cent globulin. The edema and ascites disappeared. A roentgenogram of the gastro-intestinal tract at this time again showed a deformity of the duodenal bulb. A later gastro-intestinal series showed a normal bulb. March 21, the hemoglobin was 38 per cent. He was discharged a few days later. Despite a low acid Rehfuss curve the diagnosis of duodenal ulcer was regarded as most probable.

This case offers much of interest from a number of points of view. In the first place, the rapid response of the edema to the high protein diet despite the persistence of the rather marked anemia proved that the edema and ascites were the result of the hypoproteinemia and not of the anemia. In the second place, the hypoproteinemia and the response to treatment were of some diagnostic value because the ascites together with the slightly enlarged liver and spleen led to the suspicion that the patient had hepatic cirrhosis. In view of the sequence of events, this is now considered unlikely.

CASE 6.—L. S., a man, aged 60, admitted to Dr. George Baehr's service, April 3, 1931, had had diabetes for five years, which was controlled by 40 units of insulin a day. He had symptoms of duodenal ulcer, and a gastro-intestinal series taken at that time showed a constantly irregular bulb and dilatation of the stomach with pyloric obstruction.

He was readmitted, Jan. 22, 1932, to Dr. Leo Kessel's service. Three days previously he vomited bright red blood. He was drowsy and the breath smelled of acetone. The hemoglobin was 90 per cent, the blood sugar was 185 mg., and the urine contained abundant acetone. The stools became tarry and within a few days the hemoglobin sank to 26 per cent. Three transfusions raised the hemoglobin to 54 per cent. February 17, a gastro-enterostomy was performed. February 27, the hemoglobin was 27 per cent and a pitting edema was noted in the lower extremities and over the sacrum. A dose of salyrgan led to the disappearance of the edema. March 19, the total serum protein was 5.5 Gm. per hundred cubic centimeters, of which 3.6 per cent was albumin and 1.9 per cent globulin. Slight edema was still present at this time. March 23, he was discharged with a hemoglobin of 47 per cent. The diagnosis was duodenal ulcer.

CASE 7.—E. R., a woman, aged 69, admitted to Dr. B. S. Oppenheimer's service, May 15, 1932, had had diarrhea with about six movements a day for six weeks before admission. Four weeks before she began to have edema of the legs, dyspnea, epigastric distress and precordial pain radiating to the left side of the back. She was very pale, and the lingual mucous membrane showed some atrophy. There were râles at both lung bases. The heart was enlarged to the right and to the left, and there was a rough systolic murmur at the apex and frequent extrasystoles. The abdomen showed a marked diastasis, and a globular mass, the size of a peach and slightly tender, was found in the right lower quadrant. There was marked pitting edema of both legs and in the lumbosacral region. The hemoglobin was 24 per cent, the red blood count 2,700,000, the white blood count 5,200. The color index was 0.6. The venous pressure was 10 cm. of water. The blood urea nitrogen was 11 mg. per hundred cubic centimeters. The blood sugar was 125 mg. and the cholesterol was 185 mg. The stools gave a marked guaiac reaction for blood. In view of the edema, the history of dyspnea, the evidences of hypostasis, the enlargement of the heart and the suggestive history of stenocardia, the possibility of a myocardial insufficiency was considered. This was rendered unlikely by the finding of the normal venous pressure. A total blood plasma determination showed a total protein of 4 Gm. per hundred cubic centimeters, of which the albumin was 2.5 per cent and the globulin 1.5 per cent. A roentgenogram of the colon showed a malignant tumor of the cecum.

The edema in this patient was undoubtedly due to the hypoproteinemia and not to myocardial insufficiency.

To what extent the hypoproteinemia was due to the diarrhea or to the loss of blood by rectum is problematic. To some extent the hypoproteinemia was also due to insufficient intake of protein, as the patient admitted that she had been on practically a starvation diet for a long time previous to admission.

Cases 5, 6 and 7 represent instances of secondary anemia, with hypoproteinemia and consequent edema in which the loss of protein was in large part due to loss of blood by way of the intestinal tract.

HYPOPROTEINEMIA FROM DEFICIENT FORMATION OR DESTRUCTION OF SERUM PROTEIN

In the group of cases of hypoproteinemia from deficient formation or destruction of serum protein belong the cases of dropsy associated with pernicious anemia. Whether the hypoproteinemia in pernicious anemia is the result of deficient blood formation, or to increased destruction is still an unsettled problem and will not be discussed here. Sufficient for my purpose is the fact that a low blood protein is fairly frequent in this disease.

12. Fishberg, Ella H., and Fishberg, A. M.: Proc. Soc. Exper. Biol. & Med. **25**: 296 (Jan.) 1928. Boggs, T. R., and Morris, R. S.: J. Exper. Med. **11**: 553, 1909. Leiter.[4] Kumpf.[10] Shelburne and Egloff.[9] Barker and Kirk.[8]

Edema in pernicious anemia is exceedingly common. According to Schaumann and Saltzmann,[13] it is manifest at some time or other in the course of the disease in about half of the cases. The edema is characteristically present only in the relapses and is often the first symptom of a relapse. The edema has been ascribed to various causes: to impairment of kidney function, to the anemia, to the low hemoglobin, to impairment of capillary function and to myocardial insufficiency. Numerous observations by Kahn and Barsky,[14] Gettler and Lindeman,[15] Essen and Porges[16] and Meulengracht[17] report normal renal function in pernicious anemia. Clinically, myocardial insufficiency in uncomplicated cases is not manifest by any of the criteria of myocardial failure at present available. Meulengracht found no consistent relationship between the degree of the anemia and the edema. Indeed, it is hardly necessary to theorize as to the cause of the edema in pernicious anemia because it is sufficiently accounted for by a rather consistent hypoproteinemia whether the malady is accompanied by edema or not. Gettler and Lindeman found with the refractometer that in 76 per cent of all patients with pernicious anemia the serum fraction was below the normal level; in some instances the decrease was even from 40 to 50 per cent below the normal. Kahn and Barsky found the blood protein low in three cases. Meulengracht, whose study of the blood proteins in pernicious anemia is the most comprehensive extant thus far, found a low serum protein percentage in a majority of twelve patients with pernicious anemia; he also found the colloidal osmotic pressure low and proportional to the lowering of the amount of protein. He maintains that the low plasma protein and the low colloidal pressure in the blood may be a contributing factor in the cause of the edema in pernicious anemia and that in some cases it is possibly the dominating influence. He believes, however, that there may be another factor, because there is no parallelism between the amount of edema and the reduction in the excretion of water, on the one hand, and the lowering of the colloidal osmotic pressure, on the other. However, Meulengracht made no determinations of the albumin-globulin ratio, and, as will become evident, it is not the total protein but the albumin fraction that to a large extent determines the colloidal osmotic pressure, so that Meulengracht's secondary factor loses something of its importance. The following case is illustrative of the relation of edema to low plasma protein in pernicious anemia:

CASE 8.—G. F., a woman, aged 69, admitted to the service of Dr. B. S. Oppenheimer in May, 1932, complained of increasing weakness for the past three years, attacks of palpitation, burning of the tongue, diminished appetite and dyspnea on exertion. For one year she had retrosternal burning, epigastric pain after meals, and paresthesia of the hands and feet. There was no diarrhea, vomiting, or passage of blood in the stools. Examination showed a lemon yellow skin, emaciation, atrophy of the tongue and a slightly enlarged heart to the left with a rough systolic murmur at the apex. The blood pressure was 98 systolic, 62 diastolic. The hemoglobin was 32 per cent. The red blood count was 1,050,000 and the white blood count 3,000, with 0.6 per cent reticulocytes. The platelets were 400,000 and the color index was 1.6. The test meal showed no free acid after histamine. The stool gave a negative guaiac reaction. The urine showed a trace of albumin. The Wassermann reaction of the blood was negative. The blood urea nitrogen was 13 mg. per hundred cubic centimeters. The blood sugar was 105 mg. and the cholesterol 210 mg. The chest by roentgen examination showed an old tuberculous process at both apexes. The diagnosis of pernicious anemia was obvious. The patient was given a transfusion and liver extract and in two weeks the hemoglobin rose to 48 per cent, with 15 per cent reticulocytes. One week later a pitting edema of the eyelids, back and legs was noted. The blood serum proteins were reported to be 4.6 Gm. per hundred cubic centimeters, of which 3.5 per cent was albumin and 1.1 per cent was globulin. Later investigation elicited the fact that this patient, because of anorexia, had placed herself on a low protein diet, so that the hypoproteinemia was partly nutritional in origin.

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15. Gettler, A. O., and Lindeman, Edward: Blood Chemistry of Pernicious Anemia, Arch. Int. Med. **26:** 453 (Oct.) 1920.
16. Essen, H., and Porges, O.: Wien. Arch. f. inn. Med. **5:** 195 (Oct.) 1922.
17. Meulengracht, E.; Iversen, Paul, and Nakazawa, Fusakichi: Pernicious Anemia, Arch. Int. Med. **42:** 425 (Sept.) 1928.

HYPOPROTEINEMIA DUE TO LACK OF PROTEIN INTAKE

The common occurrence of edema among the undernourished peoples in the late war is well known. Maver[18] gives an excellent historical summary of the so-called war edema and collected a large number of observations on the occurrence of dropsy during famines, in prisons in which undernourishment was practiced, and wherever starvation or semistarvation occurred. It would be idle to review the various theories that have been ascribed as to the cause of edema. Suffice it to say that every evidence shows that the so-called war or, better termed, nutritional edema is due to deficient protein intake and consequent hypoproteinemia. Jansen,[19] who made a comprehensive study of the metabolism in war edema, was apparently the first to find in thirty of forty cases a blood serum protein of between 4 and 6 Gm. per hundred cubic centimeters. The edema fluid was low in protein. He also found a negative nitrogen balance. He did not, however, ascribe the edema to the hypoproteinemia. Nixon[20] and Schittenhelm and Schlecht[21] also found low plasma proteins in war edema. That the civilian peoples in central Europe suffered from a profound lack of protein food in the last year or two of the World War is not denied. Falta[22] estimated that persons showing war dropsy had been on a diet of from 1,200 to 1,400 calories a day, of which from 30 to 50 Gm. was protein (normal 91). He believes that the edema was aggravated by the large quantity of sodium chloride in the food. Lusk[23] estimates that the average protein content of the food in Germany during the years 1916 and 1917 was only 31.1 Gm. a day. The final proof that the hypoproteinemia was the cause of the war edema was shown when it was found that the edema disappeared following polyuria with a diet adequate in protein.

Since then, abundant experimental work has shown the relation between protein poor diets and edema. Denton and Kohman[24] found that rats fed on a diet of carrots became dropsical. Kohman[25] found that, if these rats were fed adequately with protein, edema did not result and the animals grew normally. Control experiments showed that the edema was not caused by toxic products in the carrots, by starvation or by a low

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19. Jansen, W. H.: Deutsches Arch. f. klin. Med. **131:** 144 (Feb.) 1920.
20. Nixon, J. A.: Lancet **1:** 1169, 1920.
21. Schittenhelm, A., and Schlecht, H.: Berl. klin. Wchnschr. **55:** 1138, 1918.
22. Falta, W.: Wien. klin. Wchnschr. **30:** 1736, 1917.
23. Lusk, Graham: Physiol. Rev. **1:** 523 (Oct.) 1921.
24. Denton, M. C., and Kohman, Emma: J. Biol. Chem. **36:** 249 (Nov.) 1918.
25. Kohman, Emma: Am. J. Physiol. **51:** 378 (March) 1920; quoted by Maver.[18]

caloric intake. Maver,[18] in an extensive study, corroborated Kohman's results in every detail. Frisch, Mendel and Peters [26] confirmed these experiments and found the plasma proteins low. Peters, Wakeman and Eisenman [27] found low plasma proteins in all kinds of malnutrition; in cancer, pernicious anemia, pyloric and esophageal obstruction, and burns. Most of these patients had anasarca and the blood plasma proteins varied between 4.1 and 7.17 Gm. per hundred cubic centimeters. Bruckman, d'Esopo and Peters [28] also found reduced serum proteins in various forms of malnutrition. In their investigations, reduction was at the expense of the albumin fraction. Temporary high values were found when the patients were dehydrated. If infection occurred, the globulins increased. For this reason the total proteins in certain patients with malnutrition and infection may be found normal in spite of a definite albumin deficiency in the blood. Wolferth [29] found a blood protein of 4.6 Gm. per hundred cubic centimeters in a patient with a fecal fistula following appendicitis, who suffered from inanition and edema. Liu, Chu, Wang and Chung,[30] working in China, showed that nutritional edema is definitely related to the level and quantity of the protein intake. They hold that 1 Gm. of animal protein per kilogram of body weight is much superior to the same amount of vegetable protein in building up the plasma proteins and that 2 Gm. of vegetable protein per kilogram seems necessary to secure the same effect as that produced by 1 Gm. of animal protein. Shelburne and Egloff [9] caused hypoproteinemia in a dog by reducing the protein intake. The blood plasma protein was reduced from 6.8 to 4.7 Gm. per hundred cubic centimeters on the twenty-eighth day and the albumin-globulin ratio had changed from 4:2.2 to 1.8:1.6. Edema was not present until the eighty-third day, when the plasma protein was 3.2 Gm. per hundred cubic centimeters and the animal was given 13.5 Gm. of sodium chloride. Thereafter the edema persisted even when salt was not added. The cholesterol level remained normal except on the seventy-seventh and the eighty-fourth day, when the readings were 417 and 409, respectively. These observations are identical with those found by Leiter [7] in plasmapheresis.

Interesting examples of nutritional dropsy are quoted by Maver.[18] Such dropsy occurs occasionally in draft oxen and horses that are fed exclusively on distiller's wash, which consists of 5 per cent solid matter and 95 per cent water. The total amount of protein in this foodstuff is only 0.5 per cent. A similar form of dropsy or cachexia is found in sheep from insufficient pasturage.

Clinically, patients with nutritional edema presented an interesting group of signs and symptoms, many of which are common to those observed in hypoproteinemia of other origins; for instance, those associated with lipoid nephrosis. Aside from edema, these patients complained of heaviness, weakness and lassitude. They were exceedingly sensitive to cold; death followed slight chilling, so that warmth became an essential part of the treatment. Hemeralopia frequently preceded the onset of edema. Most observers report a bradycardia (Falta) with a rate of between 30 and 50. Anemia is the rule. These clinical evidences certainly resemble closely those seen in myxedema, and since the basal metabolism in lipoid nephrosis is notoriously low, it is justifiable to speculate on whether the basal metabolism in nutritional edema is also not lowered. It is suggestive in this connection that Jansen,[19] in his autopsies on cases of war edema, found the thyroid one-third the normal size. These evidences suggest but do not prove that the lowered basal metabolism is a conservative mechanism on the part of the organism and that it does not represent a primary disorder of metabolism. Perhaps the diuresis so frequently observed in nephrosis following fever represents the reaction consequent to the heightened basal metabolism.

All present evidence thus far shows that in nutritional edema a hypoproteinemia is the fundamental cause. All that remains to be added is that Jansen found no significant changes, aside from the diminution in size of the thyroid gland, in the organs of patients who died during an attack of war edema. The other organs were small, owing to the general atrophy; the kidneys were congested and showed some clouding of the epithelium. No fat was found in any of the organs by the sudan stain. The muscle fibers did not contain glycogen.

MECHANISM OF THE PRODUCTION OF EDEMA BY HYPOPROTEINEMIA

Epstein's contention that in nephrosis the law of Starling was applicable to the production of edema was first proved by Krogh,[31] and later by Mayrs [32] and by Schade and Clausen.[33] Epstein assumed that the total osmotic pressure of the plasma proteins was markedly lowered in the edema of "nephrosis." This observation has since then been repeatedly confirmed. It was soon found, however, that there was no linear relationship between the fall in the osmotic pressure of the total plasma proteins, on the one hand, and the development of edema, on the other; in other words, two specimens of plasma, each containing, say, 5 Gm. per hundred cubic centimeters, might have different colloidal osmotic pressures. This discrepancy was clarified by Govaerts,[34] who showed that the colloidal osmotic pressure of 1 Gm. of albumin was 7.54 cm. of water, while that of globulin was only 1.95 cm. Since in nephrotic edema (and indeed, for that matter, in all the hypoproteinemias of other origins) it is the albumin fraction that is lost (because of the smaller size of the molecule), it is readily understandable why estimates at which level of the hypoproteinemias edema will appear are not reliable. At present the consensus seems to be that the appearance of edema corresponds more to the level of the albumin fraction in the plasma than to any other factor. Moore and Van Slyke [35] found that, when the albumin is below 2.5 ± 0.2 Gm. per hundred cubic centimeters, edema is always present. Even such a standard must be subject to a wide range because other factors in the production of edema, such as the capillary pressure and, above all, the circulating electrolytes, must be taken into consideration. Furthermore, when fever complicates a hypoproteinemia, the globulins are increased,[35] so that the colloidal osmotic pressure of the total proteins may be decidedly affected and become disproportionate to the osmotic pressure of the albumin fraction.

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27. Peters, J. P.; Wakeman, A. M., and Eisenman, A. J.: J. Clin. Investigation **3**: 491 (Feb.) 1927.
28. Bruckman, F. S.; d'Esopo, L. M., and Peters, J. P.: J. Clin. Investigation **8**: 577 (June) 1930.
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31. Krogh, August: Anatomy and Physiology of the Capillaries, New Haven, Conn., Yale University Press, 1924.
32. Mayrs, E. B.: Quart. J. Med. **19**: 273 (April) 1926.
33. Schade, H., and Clausen, F.: Ztschr. f. klin. Med. **100**: 363, 1924.
34. Govaerts, P.: Bull. Acad. roy. de méd. de Belg. **4**: 161, 1924.
35. Moore, N. S., and Van Slyke, D. D.: J. Clin. Investigation **8**: 337 (April) 1930.

Increased capillary permeability probably plays no rôle in causing transudation in hypoproteinemia because the edematous fluid contains very little protein—less than 1 per cent—in contradistinction to the exudates resulting from inflammatory processes, which contain from 4 to 6 per cent of protein.[36] It is obvious that if the hydrostatic pressure in the human capillaries, which, according to Landis, ranges between 32 mm. of mercury in the arteriolar limb to 12 mm. in the venous, is increased the tendency to edema will increase. The edema in cardiac patients is probably the result of a combination of increased capillary pressure (which is in turn consequent on the increased venous pressure) with increased permeability of the capillaries due to asphyxia and is independent of any change in the total proteins in the blood, which indeed are usually unaffected in such patients. In a recent study, Payne and Peters [37] found a low protein blood content in certain cardiac patients with edema who suffered from malnutrition. Such edemas subside with an increase of protein in the diet. Iversen and Nakazawa [38] and Schade and Clausen [33] found in decompensated cardiac patients that the colloidal osmotic pressure of the plasma was not sufficiently low to explain the edema. Reduction of the hydrostatic pressure within the capillaries to the point of neutralizing the decreased osmotic tension of the proteins in hypoproteinemia apparently does not obtain in the living organism. The only way of counteracting such an influence is to increase the blood proteins by feeding or by transfusion. Iversen and Nakazawa state that when the hydrostatic pressure is unchanged edema appears when the colloidal osmotic pressure of the plasma is reduced to from 17 to 21 mm. of mercury, while Mayrs observed that the edema disappeared when the colloidal osmotic pressure was elevated to between 15 and 17 mm. of mercury. Landis,[39] in a well studied case of tuberculous enteritis with hypoproteinemia, found that the edema disappeared when the osmotic pressure rose to 17.5 mm. of mercury coincident with a rise of total protein to 4.7 per cent following a transfusion.

The balance between the osmotic pressure of the plasma and the hydrostatic pressure in the capillaries does not explain every phenomenon in the production of edema. There is a third factor and an important one; namely, the behavior of certain electrocytes in the body tissues. Ever since Widal, who ascribed the edema in certain renal disorders to the failure of the kidney to excrete salt, the relation of sodium chloride to edema formation has been a much debated subject. While there is no doubt that the restriction of salt had a very profound effect on the edema, it soon became evident that it was not the inability of the kidney to excrete salt that caused the edema, but rather that all edematous patients, no matter of what origin, retained salt, because the transudate abstracted salt from the tissues. That salt retention alone is not the cause of the edema is seen in the cases of blocked kidneys due to bilateral obstruction with resulting anuria, in which the retention of salt reaches enormous levels without the development of anasarca. Apparently the effect of salt on the water exchange between the blood and the body tissues depends almost entirely on whether the patient is edematous or not. In other words, given an edema of whatever origin, hypoproteinemia for instance, the effect of salt ingestion is profound, as any clinician can testify. When the subject is deprived of salt, the edema will subside; an increase will aggravate it, with consequent chloride retention and oliguria. In experimental plasmapheresis, when the hypoproteinemia approached the critical level the addition of appreciable quantities of sodium chloride to the diet rapidly brought about an edema, and when the edema had already occurred the ingestion of sodium chloride increased the edema profoundly.[40] I shall not enter too largely into the question whether the sodium or the chloride ion is responsible for this action, except to say that since other sodium salts, such as potassium, ammonium and calcium chloride, decrease the edema, the evidence strongly favors the sodium ion as being the responsible ion. This was also shown by Shelburne and Egloff in their observations on plasmapheresis.

The factor of the electrolytes cannot therefore be ignored in the explanation of edema. Van Slyke applied the law of the Donnan equilibrium to the development of edema. He held that the nondiffusible protein ion causes an unequal distribution of the diffusible ions represented by the ions of the electrocytes, so that the latter represent about one fifth of the total osmotic pressure when in equilibrium with Ringer's solution. When hypoproteinemia occurs, this fraction of the osmotic pressure is correspondingly lowered.

There is nothing specific in the reversal of the albumin-globulin ratio in the hypoproteinemias of renal origin. It is manifest in hypoproteinemias of any origin. The cause of this reversal is not entirely clear. One may conjecture that the reversal is due partly to the fact that in hypoproteinemia it is the albumin and not the globulin that is lost, and partly to the power of the body to regenerate globulin in such conditions as a compensatory measure.

The cause for the lipemia usually associated with hypoproteinemia has not been explained.

The capstone to this structure built up by the painstaking work of a host of clinical investigations was set by Leiter, who by plasmapheresis demonstrated in his experimental animals every phenomenon that had hitherto been described under the generic name of nephrosis: hypoproteinemia, edema, reversal of the albumin-globulin ratio, and lipemia. Since then, his work has been confirmed by numerous observers (Barker and Kirk; Fahr, Kerkhof and Giere, Kumpf, and Shelburne and Egloff). A summary of the results of plasmapheresis are admirably set forth in Leiter's recent monograph.[4]

CONCLUSIONS

Hypoproteinemia is common to many disorders and may result from

(*a*) Loss of protein.

(*b*) Deficient formation or destruction of plasma protein.

(*c*) Insufficient intake of protein.

Protein may be lost

(*a*) By way of the kidneys (nephrotic type).

(*b*) By diarrheas of the alimentary tract.

(*c*) In anasarca.

(*d*) By loss of blood.

Hypoproteinemia due to deficient formation or increased destruction of plasma protein is one of the essential features of pernicious anemia.

36. Loeb, R. F.; Atchley, D. W.; Richards, D. W., Jr.; Benedict, Ethel M., and Driscoll, Mary E.: J. Clin. Investigation **11**: 621 (May) 1932.

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39. Landis, E. M.: Heart **15**: 209, 1930.

40. Fahr, George; Kerkhof, Arthur, and Giere, Ellis: Proc. Soc. Exper. Biol. & Med. **29**: 335 (Dec.) 1931. Shelburne and Egloff.[9]

Hypoproteinemias resulting from insufficient intake of protein arise in the conditions previously known as war edema, famine edema, hunger edema, prison edema and the edema associated with cachexia.

Hypoproteinemia produces the syndrome that has hitherto been classified under the heading "nephrosis"; namely, edema, inversion of the albumin-globulin ratio, lipemia, and usually a lowered basal metabolism. The term "nephrosis" should be relegated to those forms of hypoproteinemia that are exclusively renal in origin. "Nephrosis" cannot be classified as a disease because it has multiform backgrounds in morbid anatomy.

The fundamental cause of the edema is the hypoproteinemia, and the mechanism is that suggested by Epstein; namely, a reduction in the osmotic pressure of the serum protein. This has been conclusively shown both clinically and experimentally. The appearance and intensity of the edema parallels the reduction of the albumin fraction rather than the total plasma protein, because the albumin has a much higher osmotic tension than the globulin and the fibrinogen, the other important protein components of the blood plasma.

The circulating electrolytes have an important influence in modifying the edema associated with hypoproteinemia, and the evidence is strong that it is the sodium ion and not the chloride ion that tends to aggravate the preexisting edema. Calcium and potassium seem to have the opposite effect.

Edemas of cardiac origin are not directly related to hypoproteinemia, except in certain instances of malnutrition. In edemas of purely cardiac origin the increased capillary permeability plays the essential rôle.

The lipemia and the lowered basal metabolism in hypoproteinemia are still unexplained.

25 West Sixty-Eighth Street.

ORCHITIS DUE TO MUMPS WITHOUT INVOLVEMENT OF THE PAROTID GLANDS

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Orchitis occurring in infectious diseases is relatively common. Cases have been frequently reported in medical literature of acute inflammatory changes in the testicles complicating typhoid, paratyphoid, smallpox, tonsillitis, scarlet fever, diphtheria and other contagious and infectious diseases. Probably one of the most frequent infectious diseases in which the testicle is involved is mumps. Some writers have mentioned that the complication occurs once in every three cases, while others have observed a change in either the right or the left testicle in about 18 per cent. Of the cases affected, subsequently 55 per cent were followed by atrophy of either one or the other testicle. Following a rather sudden elevation of temperature, within a day or two there is pain below and in front of the ear with stiffness at the angle of the jaw and involvement of the parotid and other salivary glands. Within a period of about eight days, one or two testicles may become acutely inflamed. This constitutes the ordinary symptoms of mumps, and when complicated by orchitis a diagnosis is easily made and testicular change is readily accounted for.

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However, without involvement of the parotid or salivary glands, diagnosis of orchitis complicating mumps may not be readily recognized. In reviewing the literature, one textbook reports only sixty-four cases and little mention is made of the subject. We present a case, adding one more to the records of orchitis due to mumps without involvement of the parotid or other salivary glands.

A man, aged 32, whose past history was of no great importance, had had a few of the acute infectious diseases of childhood but never mumps, had always been in good health, was active in outdoor sports, and had traveled considerably. His urologic history was relatively negative except that six years before he had an acute gonorrheal infection and was treated by one of us. This infection had been cured, because many smears were made and repeated over an indefinite period. All were found negative to pus cells or bacteria. The possibilities of infection in the lower urologic tract were carefully investigated both by clinical and by laboratory examinations and were found to be negative. In his family history the most important finding was that a brother had died from tuberculosis. Examination for tuberculosis was negative in his case.

While on a trip to Canada the patient became sick and called a physician, who found he had a temperature of 102 F. and thought he was suffering from a cold. Under treatment he did not improve; his fever persisted and he returned home. Following his arrival home the left testicle became suddenly painful and swollen, and one of us was called in to see him. The patient had a temperature of 102 and complained of severe pain in the left testicle. It was large, acutely tender, smooth and very sensitive to touch. The epididymis could not be outlined because of tension within the tunica vaginalis testis. The cord and vas were not involved. All other clinical observations were negative. Inquiry into family conditions revealed that one of his daughters had recovered from an attack of mumps two weeks previously.

Under routine treatment such as rest, diet and elevation of the scrotum with the application of ice, the patient did very well. About the fourth day the right testicle became suddenly swollen and tender, with a marked elevation of temperature, 103.6. The next few days the swelling and pain increased regardless of treatment, which consisted of ice and heat. Morphine and sedatives did not relieve his pain, and the temperature persisted between 103 and 104. General malaise increased, the pulse was rapid, the skin became dry, and the urinary output was scanty in the face of forced fluids. With the unfavorable progress at home it was decided to remove him to the hospital for closer observation, with the thought of operating on the enormous swollen testicle, which was under considerable tension, causing almost uncontrollable pain. On admission to the hospital the patient appeared to be quite ill. His temperature was 104. Physical examination was negative except for mild swelling of the left testicle and enormous swelling and tenderness of the right testicle. The enlargement was smooth and round and felt as if the tunica vaginalis was under great pressure. Careful watch was kept of the parotid and salivary glands, but there was no enlargement or evidence of inflammation of their ducts. Repeated urinary examinations were essentially negative. Examination of the blood showed a leukocytosis of 14,000 with a relative lymphocytosis of 36 per cent. The Wassermann and Widal tests and blood cultures were negative.

His treatment in the hospital consisted of liquid diet, forced fluids, morphine for pain, and elevation of the scrotum. We found that the application of heat gave him the most relief. However, the swelling was large and the tension great. It was decided that operation for relief of tension, probably caused by fluid in the cavity of the tunica vaginalis, would relieve his condition. On the morning set for the operation the patient suddenly began to feel relieved of the testicular pain, and the temperature abruptly dropped to normal. This was on the third day following his admission to the hospital. From this time on he gradually improved and was discharged from the hospital on the ninth day, the testicles practically normal in size and free from pain.

It is now one and a half years since the onset of his illness and a recent check-up was made with the following results: Essentially the lower urologic tract was normal. The left testicle, which was first involved, was normal in size and shape but slightly soft in consistency. There was no change in the cord, vas or epididymis. No pathologic changes could be found on the right side. The testicle was normal in size and feeling. The patient did not complain of subjective symptoms and apparently is enjoying good health. Symptoms not being severe enough and fortunately subsiding at the time of the considered operation, we are unable to describe what pathologic changes would have been found.

However, it is fitting at this time to describe the pathology of orchitis of mumps, and we are indebted to Dr. George Gilbert Smith, who has performed operations in two such cases. He found on opening the tunica vaginalis that there was an escape of about 1 ounce of turbid yellow fluid. The testicle was considerably enlarged, firm and elastic on palpation. The color was bluer than normal and throughout the tunica albuginea were scattered minute reddish specks, probably punctate hemorrhages. The epididymis was definitely enlarged, soft without induration and deep red, the globus major almost black. The cord was somewhat edematous and the vas normal. Dr. Smith's second case presented "an almost identical picture." Small sections of these testicles were examined by Dr. S. B. Wolbach in the Harvard Medical School, and he reported as follows:

The process does not affect the testicle tissue uniformly. There are groups of seminiferous tubules which are completely destroyed and distended with exudate, separated by areas of normal and slightly affected tubules which contain large numbers of mitotic sexual cells, though there were few mature spermatozoa. The exudate in the destroyed tubules consisted chiefly of polymorphonuclear leukocytes and phagocytic endothelial leukocytes. The cells of the tubules had undergone a hyaline degeneration, being taken up by phagocytic endothelial leukocytes. The intertubular connective tissue was edematous and between the tubules most affected were coarse meshed fibrin, small areas of hemorrhage and many polymorphonuclear leukocytes and endothelial leukocytes. Among the groups of least affected tubules were normal epithelium but with lumina partly filled with polymorphonuclear and endothelial leukocytes, as if the process was spreading along the lumina. There were many other tubules with lesions involving a small portion of the circumference which appeared as if the process was extending from the intertubular connective tissue. The tunica albuginea was edematous with small hemorrhages and zones of cellular exudate about the blood vessels. The cells about the blood vessels were polymorphonuclear leukocytes and endothelial leukocytes. Liquefaction necrosis was not found in the tubules or connective structures. No bacteria or parasites were found in sections and films made at the time of operation. In both cases blood cultures and cultures from hydrocele fluid and testicular tissue were bacteriologically negative.

For this work and the description we are indebted to Dr. Smith and Dr. Wolbach and are sorry that we could not have gone further with our case to compare the observations.

CONCLUSION

We feel certain as to the diagnosis in eliminating the various causes of orchitis in this case. Chiefly syphilis was ruled out by the history and by the Wassermann test. Tuberculosis was strongly considered on account of the family tendency; this was ruled out by the absence of involvement of the epididymis following recovery from the acute symptoms, by the urologic check-up and by negative examinations of the lungs and roentgenograms. Typhoid and septicemia were eliminated by blood studies. The important question of gonorrhea and its sequels was thoroughly eliminated by clinical and laboratory examinations.

Mumps was the final diagnosis for the following reasons: the fact that the patient had never suffered from the disease but had recently been exposed to the disease by his daughter; the sequence of involvement of first one testicle and then the other; the duration of the illness with swelling and enlargement of the testicle proper, and finally the relative lymphocytosis, which closely conforms to the previously reported cases of mumps in which the testicles are involved without apparent changes in the parotid or salivary glands.

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DIPHTHERIA CONTROL IN CHICAGO

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Experiences in New York State and in Detroit and other cities during the past nine years seem to indicate that if certain fractions of the child population were immunized against diphtheria, epidemics would not occur.[1] It is usually stated that if 35 per cent of the preschool children and 50 per cent of the school children were immunized, outbreaks of diphtheria in a community would not be possible.[2]

It is generally agreed that the most satisfactory method of active diphtheria immunization at the present time is with toxoid. Of a series of 100 infants, aged from 4 days to 2 years, given two injections of ordinary toxoid at intervals of either one or three weeks apart, 98 became Schick negative within three months.[3]

Recently, the alum toxoid first described in 1931,[4] and afterward perfected by Park,[5] has been shown to be even more efficient. In a preliminary experiment, of 500 children given two doses of 1 cc. of alum toxoid at a one-week interval, 95 per cent became Schick negative within sixty days, and over 99 per cent within seven months.[6]

Prior to 1931, Chicago's efforts in preventing diphtheria consisted in the immunization of some school children. For the fourteen years from 1917 through 1931, a total of 261,507 school children under 10 years of age had each received three injections of toxin-antitoxin. Chicago has a total of about 260,000 school children under 10 years of age. Nevertheless, up to 1930, diphtheria continued at about the same rate as previous to that time.

A study of the statistics shows that approximately 30 per cent of the diphtheria in children in Chicago was occurring in those under 5 years of age, that is, the preschool group, but that over 50 per cent of the mortality was in this age group. Even though over a quarter of a million school children were immunized up to 1931, nevertheless 70 per cent of the cases were

1. Godfrey, E. S., Jr.: Study in the Epidemiology of Diphtheria in Relation to the Active Immunization of Certain Age Groups, Am. J. Pub. Health **22**: 237 (March) 1932.
2. By immunized is meant injection of toxoid or toxin-antitoxin, followed by a negative Schick test.
3. Greengard, Joseph: Diphtheria Toxoid (Diphtheria Anatoxin-Ramon) in Infancy, J. A. M. A. **97**: 228 (July 25) 1931.
4. Glenny, A. T., and Barr, Mollie: J. Path. & Bact. **34**: 131 (March) 1931.
5. Park, W. H., and Schroder, H. C.: Am. J. Pub. Health **22**: 7 (Jan.) 1932.
6. Annual Report of the Chicago Board of Health, 1933.

occurring in school children. Therefore, a concerted drive was started in October, 1931, to immunize the preschool children without any remission of efforts to protect those in the schools.

It was felt from the beginning of the drive that the family physician should be depended on to do the bulk of the work. However, some method had to be devised for getting parents to take their children to the private physicians for immunization. In order to accomplish this, the nurses were made the sales force.

In Detroit, Dr. Henry Vaughan, commissioner of health, reports that a general educational program through newspapers, the radio, bulletins and the like

TABLE 1.—*Decline in Case and Death Rates in Six Year Period*

Per 100,000 Population	Case Rate	Death Rate
1927	129.0	13.8
1928	149.6	14.0
1929	180.7	15.4
1930	146.3	12.1
1931	90.9	6.2
1932	35.9	1.8

secured response in the form of protection against diphtheria in only from 18 to 20 per cent of the children. However, with the visits of nurses to the homes, from 60 to 90 per cent of the parents responded by taking their children to physicians to have them immunized.[7]

METHODS OF URGING IMMUNIZATION

There is on file in the Chicago Board of Health an up-to-date list of 331,461 babies, representing the children living in Chicago who were born since August, 1925, exclusive of those who have died or left the city, or have moved and could not be located. In order to keep this list up to date, every month or two some type of literature was sent to the mothers whose names are on this list. The literature was returned with a forwarding address when the individual had moved, so that the addresses on the list could be corrected.

This up-to-date list was run through the addressograph machine, producing 292,461 name cards. The city was divided into 140 districts, and at the start of the campaign each district was assigned to a nurse. The cards were then distributed according to these districts. The nurses routed the cards in each district for the purpose of making calls.

The nurses also made a house to house canvass of the entire city, in order to get the names and addresses of children under 8 years of age not born in Chicago but who have come to live in the city.

After the program had been in effect for several months, an additional staff of 180 temporary nurses was added to the force, and at the present time there are also 80 nurses from the Municipal Tuberculosis Sanitarium who are giving part of their time in aiding this drive.

The eighteen stations of the Infant Welfare Society, the twenty-two of the board of health, and the public and parochial schools were made centers for the administration of the diphtheria toxoid to those who could not afford a private physician.

An extensive program of publicity and education was begun in October, 1931, by sending a bulletin concerning diphtheria prevention to the mothers of all children under 8 years of age and letters to physicians, teachers and pastors; with posters on bill-boards, in street cars and trains, with taxicab stickers and with a series of radio talks.

A study of the mortality statistics showed that the majority of the deaths were occurring in children of the Slavic races, the majority of whom are of the Catholic faith. Therefore, a special folder, containing letters from Cardinal Mundelein, together with a letter from the president of the board of health, was prepared and distributed from the churches and parochial schools, following a statement of explanation by the priest.

Dr. Louis D. Moorhead, the cardinal's representative and a consulting member of the Chicago Board of Health, gave invaluable services in aiding to secure consents from many of the people of his faith and helped in the drive in many other ways.

The nurses each had a group of cards, containing the names of parents of children in the district assigned to them, who had not been immunized against diphtheria. They visited these parents, and urged them to take their children to the family physician for protection. In those instances in which the family was unable to afford a private physician, they were informed that the child could be taken to the nearest infant welfare station or school to have the inoculations given.

TABLE 2.—*Morbidity and Mortality Statistics for Various Age Groups*

	1927		1928		1929		1930		1931		1932	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Under 1 year	65	20	89	14	84	23	126	15	70	7	14	1
1 year	148	29	269	30	250	57	174	31	125	26	36	7
2 years	248	48	398	44	424	69	274	35	234	29	87	10
3 years	329	59	512	67	553	67	350	52	257	24	126	7
4 years	397	61	471	66	602	45	411	50	315	25	115	7
From 5 to 9 years	1,655	174	1,530	173	2,199	187	2,338	168	1,297	75	451	28
From 10 to 14 years	516	33	549	41	767	35	503	28	354	15	129	4
From 15 to 19 years	152	4	252	2	264	9	234	4	150	0	63	0
20 years and over	539	14	745	20	835	21	547	28	323	14	230	4
Unknown	74	0	65	0	34	0	5	0	20	0	15	0

If the child had already been given injections, it was noted on the card. As soon as the child was inoculated, a tab was put on the addressograph plate containing his name, indicating that the child had been injected. After the nurses had completed their calls and the plates of the injected children were tabbed, all the plates were run through the addressograph machine a second time. The tab on the plate kept a card for that plate from being printed, so that a second list was secured of the children who had not received inoculations. In the second list there were 134,109 names. The nurses then made a second visit to the homes of nonimmunized children, and the process of urging inoculations was repeated. The plates for children immunized since the previous visit were tabbed. The third list was then run and contained 102,546 names of nonimmunized children; the fourth, 78,436; the fifth, 36,558, and the sixth, 21,686.

7. Detroit Department of Health Bulletin, November, December, 1931.

In addition, as soon as each child in the city reached the age of 6 months, a visit to his home was made by the nurse to urge immunization.

During 1932, 218,030 children under 7 years of age, and a number between 7 and 10 years of age, were each given two doses of toxoid, and 78,495 school

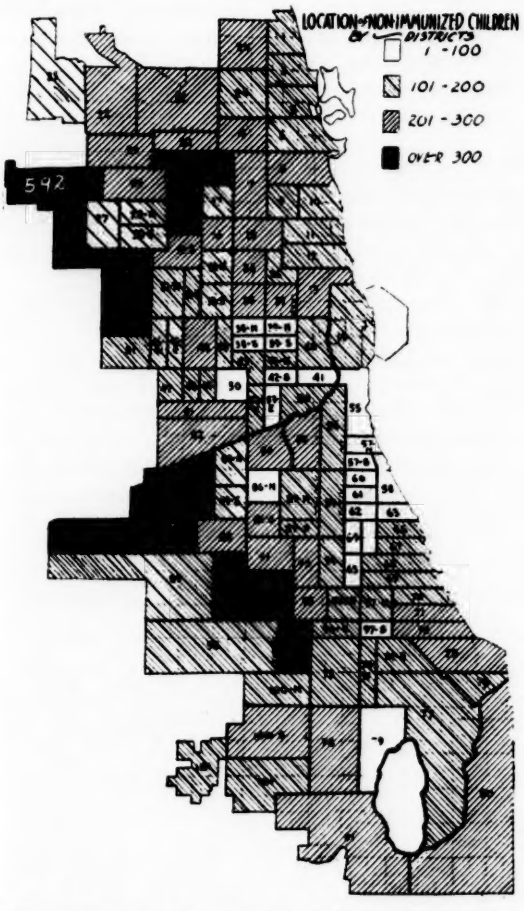

Fig. 1.—Location of nonimmunized children in Chicago.

children, representing the remainder between 7 and 10 years of age, were given three doses of toxin-antitoxin.

The nurses at all times encouraged the parents to take their children to private physicians when this was possible.

Very early in 1932 it was found that while the nurses did sell the idea of immunization to the parents, as shown by the large number of request cards signed, nevertheless, when the nurses revisited the homes they found that one out of every three mothers had failed to take her child either to the private physician or to the welfare station to be immunized. This usually occurred because of lack of finances, indifference, or inability to find time to take the child to be injected. Some parents were unable to afford even carfare.

In view of the fact that the parents were unable to bring the children to be immunized, it was planned to bring the immunization to them. Two busses were fitted out with the necessary materials for administering toxoid. These busses have been on the street since September, 1932. From them, 16,496 children, whose parents were unable to afford private physicians, were injected.

At the beginning of the program in October, 1931, children under 6 years of age were given two doses of toxoid at weekly intervals. Children over 6 years of age were given three doses of toxin-antitoxin. Starting in October, 1932, all children under 10 years of age were given two doses of toxoid, and those few over 10 who were inoculated were given three doses of toxin-antitoxin. Since September, 1932, alum toxoid has been used.

The efficacy of the program is shown by the case rates and death rates for diphtheria in Chicago from 1927 through 1932 (table 1).

Table 2 shows the morbidity and mortality statistics of diphtheria for the various age groups, from 1927 through 1932.

During 1933 up to March 28 there have been eighty-three cases of diphtheria reported and only four deaths. From January 5 to February 12, a period of thirty-nine days, there were no deaths from diphtheria. The last death was of a child whose parents refused to permit him to be immunized. In the same thirty-nine days during 1929 there were 384 cases and 16 deaths.

The three deaths during 1933 occurred even though more than 85 per cent of the preschool population and more than 60 per cent of the school children have been inoculated against diphtheria. This is contrary to the expectations based on the reports from New York,[1] which we believe may be accounted for in part by the following facts:

In certain areas in Chicago there are groups of children whose parents, for one reason or another, resist having their children immunized, as can be seen from the map. In one of the 140 districts into which the city was divided, in February, 1933, 595 children were still unprotected; that is, about 3 per cent of the total of 21,686 children not immunized at that time (fig. 1). Such an area is like a small city in which the diphtheria cases and deaths may persist and the disease become epidemic even though the large majority of the entire childhood population of Chicago has been immunized. Even though more than 85 per cent of the preschool and 60 per cent of the school children in the city have been immunized, in these areas not even the 35 per cent and 50 per cent minimums stated by Godfrey have been attained.

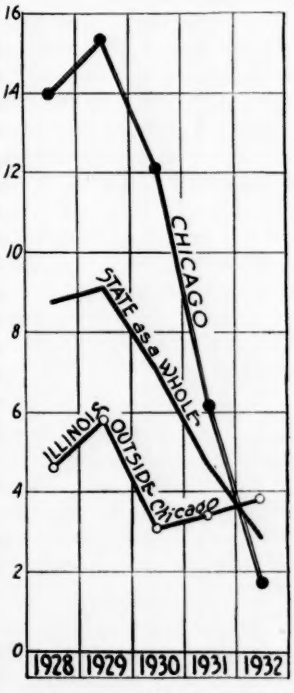

Fig. 2. — Diphtheria death rate per hundred thousand of population in the state of Illinois.

In order to obtain complete protection for the entire community, no such large groups of children in any center should be allowed to go unimmunized. In other words, when it is said that diphtheria will vanish when at least 35 per cent of the preschool population and 50 per cent of the school children have been protected, it should mean that this 35 and 50 per cent must be distributed evenly throughout the city.

The effect of the diphtheria immunization program in Chicago on the mortality statistics of the state of Illinois is shown in figure 2.

It will be noted that the mortality from diphtheria outside the city of Chicago has been rising during

1930, 1931 and 1932, but that in Chicago it has been sharply decreasing. The decrease in Chicago has been so great that even though the mortality in the remainder of the state is increasing, it appears that the mortality throughout the state is receding. In other words, there has been a rapid decline of diphtheria in Chicago and an increase in the remainder of the state.

The state director of health should be given as much support as possible, as well as financial aid, for procuring the necessary biologic materials for a drive to reduce diphtheria mortality throughout Illinois.

At the present time, as soon as a child reaches 6 months of age, the nurse makes a call at the home to urge diphtheria immunization by the family physician. Return visits are made again at 8, 10 and 12 months if the child is not reported as having been given injections.

If, on the first return visit, the nurse finds that the parents have been unable to afford a private physician, she suggests taking the child to the nearest infant welfare station. At all times, the nurse is the salesman, making contacts and urging immunization by the private physician. The more contacts that are made, the more children are likely to be taken for protective injections. Contact is now being made with about 150 babies daily, as they reach 6 months of age, and provisions for their immediate immunization are thus established.

At present, the consensus seems to be that the best time for immunizing the child against diphtheria is between 6 and 9 months of age.[8]

Park[9] states that in cities the best age for starting immunization against diphtheria is 9 months. In the country districts, he recommends starting at 6 months. In cities, the majority of mothers are immune to diphtheria. Therefore, the new-born babies are immune and the majority of infants keep this immunity until they are from 8 to 10 months of age.

However, we have found that even though immunization is urged, starting at 6 months, injections are not completed in many infants until they are a year old. February 1, 1933, of the children 7 months old, only 30 per cent had been injected; of those 8 months old, only 30 per cent; 9 months old, 60 per cent; 10 months old, 60 per cent; 11 months old, 75 per cent, and 12 months old, 85 per cent. Therefore, we think it wise to continue urging the giving of inoculations at 6 months.

SUMMARY

1. The diphtheria mortality in Chicago has been materially reduced by having nurses call on the parents of every child up to 8 years of age, urging that the child be taken to the family physician for diphtheria immunization and obtaining signed cards asking that the children be immunized.

2. The maintenance of an up-to-date addressograph list of all the younger children up to 8 years of age in a community is most important in carrying out many public health programs. It has been of extreme value in Chicago's diphtheria prevention campaign.

3. As soon as the child reaches the age of 6 months, a personal call is made on the mother; by continuing this routine it is likely that the diphtheria immunization will be brought to even a higher level and the mortality and morbidity to lower levels than have already been attained.

4. With the alum toxoid, a far lesser number of reactions occur in the children; there is a more rapid production of immunity, and a greater percentage of the children become immune with two inoculations. In the light of present knowledge, it seems to be the most efficient immunizing agent against diphtheria.

5. In all communities in which there are a large number of foreign-born individuals, especially those of the Slavic races, the aid of the Catholic church proves invaluable in promoting public health work. Some of the individuals of these races, who, perhaps, have suffered from persecution of various types in foreign countries in years past, tend to resent any interference with what they consider personal liberty. The church aids materially in overcoming this resentment and has been one of the greatest single factors in making this campaign successful.

6. The distribution of literature urging diphtheria immunization in itself will not bring about protection of a large proportion of the childhood population. Such literature is, however, of great value in paving the way for the visits of the nurses, who should be the salesmen selling diphtheria immunization.

7. The cooperation of organized medicine is essential in the successful conduct of any public health campaign.

City Hall.

8. Prebit, M.: The Results of Active Antidiphtheria Immunization of Babies During the First Year of Life, Rinasc. med., September, 1931. Blum, Julius: Age Factor in Active Immunization of Infants Against Diphtheria, M. Officer **47**: 245 (June 18) 1932.

9. Park, W. H.: Personal communication to the authors.

DIPHTHERIA IMMUNIZATION WITH A SINGLE INJECTION OF PRECIPITATED TOXOID

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Wells, Graham and Havens,[1] have described the precipitation of diphtheria toxoid with aluminum potassium sulphate, following the method of Glenny and Barr.[2] Havens and Wells[3] have recently reported further work with completely precipitated toxoid. To the toxoid, prepared in the usual manner, by detoxification with formaldehyde, alum was added until no further precipitation occurred. The coarse, flocculent precipitate was washed twice with 0.85 per cent sodium chloride solution and the washed precipitate was then made up to such a volume with 0.85 per cent sodium chloride solution that 1 cc. contained the desired number of flocculating units. This treatment resulted in a purified product, as evidenced by the fact that nitrogen determinations showed an average loss of from 80 to 85 per cent of the original protein content. Antigenic tests in guinea-pigs indicated that a high degree of immunity is produced, a single injection of 5 units resulting in protection against as much as 450 minimum lethal doses of toxin. This paper presents the results obtained in children with this product.

A total of 798 children have been given a single injection of the alum precipitated toxoid. These may be divided for purposes of discussion into three groups. Groups 1 and 2 consisted of children of school age who were found to be strongly Schick positive and who were retested from two to six months after the single dose

1. Wells, D. M.; Graham, A. H., and Havens, L. C.: Am. J. Pub. Health **22**: 648 (June) 1932.

2. Glenny, A. T., and Barr, Mollie: J. Path. & Bact. **34**: 131 (March) 1931.

3. Havens, L. C., and Wells, D. M., to be published.

of toxoid. Group 1 received toxoid containing 10 units per cubic centimeter, while group 2 received toxoid containing 5 units per cubic centimeter. Group 3 consisted of children who were given the one injection of toxoid (either 5 or 10 units) without a preliminary Schick test but who were tested from two to four months later. Of the 613 children, 444 were in the age group 0 to 6 years.

Results appear in the accompanying table. Reactions, on the whole, either local or general, were no greater or more frequent than would be expected from ordinary toxoid in similar groups.

COMMENT

The results of immunization of children indicate clearly that a single injection of the alum precipitated toxoid results in immunity in a high percentage of cases. A single injection appears to be as effective as two or three injections of the best unprecipitated toxoid. The group of children who are known to have been strongly Schick positive prior to the injection of toxoid yielded 92.4 per cent completely Schick negative results from two to six months later. While the immunity status of group 3 was not known before the the administration of the toxoid, the important fact, from the practical standpoint of mass immunization against diphtheria, is that one may expect at least 95 per cent immunity following a single injection. The effect in accelerating the prevention of diphtheria by mass immunization is obvious.

Immunity Status of Seven Hundred and Ninety-Eight Children Following a Single Injection of Precipitated Toxoid

Group	Number of Children	Original Schick	Toxoid	Re-Schick		Negative, per Cent
				Positive	Negative	
1	99	All positive	1 cc., 10 units	6	93	93.9
2	86	All positive	1 cc., 5 units	8	78	90.7
1 and 2	185	All positive	1 cc., 5-10 units	14	171	92.4
3	613	Unknown	1 cc., 5-10 units	21	592	96.57

It seems plausible to explain the effectiveness, as an immunizing agent, of the precipitated toxoid on the basis of its relative insolubility. It is absorbed slowly; less antigen is lost by rapid excretion, and there is a consequent prolonged antigenic stimulation. Soluble toxoid, on the other hand, as Glenny, Buttle and Stevens [4] have shown, is excreted rapidly and there is only a transient stimulus to antitoxin production. These investigators conclude that, while part of the increased effectiveness may be due to local damage of the tissues by the alum, the chief factor is the slow, gradual absorption of the toxoid over a comparatively long period of time, with a resultant increased duration of exposure of the tissues to the specific antigen.

Precipitated toxoid has several advantages over the ordinary toxoid. Foremost, of course, is its greatly superior antigenic action. For practical field work in the prevention of diphtheria, the value of a single injection needs no comment. The precipitated product results in economies of preparation, in that two or three times as many persons may be immunized with the same amount of toxoid. A potent toxoid can be diluted to a fixed standard, while a weak one can be concentrated by resuspending the precipitate in a smaller volume of salt solution. The results with group 2, as shown in the table, indicate that five units are sufficient to produce a negative Schick test in at least 90 per cent of known susceptible children. If this suggestion is confirmed by further observations, the average toxoid can be considered diluted.

4. Glenny, A. T.; Buttle, G. A. H., and Stevens, Muriel F.: J. Path. & Bact. **34**: 267 (March) 1931.

SUMMARY

A single injection of from 5 to 10 units of precipitated toxoid has rendered 171, or 92.4 per cent, of 185 strongly Schick positive children Schick negative.

Of 613 children, 592, or 96.6 per cent, were Schick negative when tested from two to four months after a single injection. The original immunity status was unknown, but 72 per cent were preschool children.

AN UNUSUAL ENCEPHALOPATHY, PROBABLY INFECTIOUS IN ORIGIN

CLINICAL REPORT ON TWENTY CASES

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During the latter eight months of 1932, in the vicinity of Cincinnati, I had occasion to observe both in private practice and in the service of the neurologic department of the Cincinnati General Hospital a number of cases of encephalitis differing in their clinical manifestations from the epidemic which first appeared in 1914. Some of the cases showed evidence of bleeding in the spinal fluid, others were accompanied by bleeding with lymphocytes, while still others showed no evidence of either red or white blood cells in the spinal fluid, although the latter group showed some increase in the globulin content.

Somnolence was a symptom in some cases but was by no means constant. Some of the cases tended toward partial or complete recovery. None of the patients who have recovered have shown extrapyramidal residuals.

REPORT OF CASES

CASE 1.—Mrs. H. C., aged 48, referred by Dr. George Topmoeller, seen, Aug. 25, 1932, had voiced many neurasthenic complaints for a number of years, according to the history obtained from her husband. She complained of weakness and exhaustion and at times coughed, although she never coughed up any blood. Her condition had been about the same until two days before her admission to the hospital. At that time she complained of pain in the bladder and difficulty of urination. Her family physician examined the urine and aside from a few pus cells noted nothing unusual. Two days before coming into the hospital, she fainted. After recovering from the faint she was drowsy and the following morning could not be roused. She was taken to the Good Samaritan Hospital and on entering was in a state of delirium, using obscene language and swearing at the nurses and physicians, a thing that was entirely foreign to her normal conduct. This state of delirium did not last more than a few hours, when she became drowsy and somnolent and could not be roused.

Neurologic examination showed dilated hippus pupils, slight ptosis of the left eyelid, loss of abdominal reflexes, and positive Babinski and ankle clonus on the right side and to a lesser extent on the left side.

A spinal puncture was performed. The fluid was under a low pressure, registering 4 cm. of water. It was blood tinged. At first it was thought that this was due to the spinal puncture; but on immediate centrifugation of the fluid, the supernatant fluid was seen to be yellow, showing that the blood was coming from some point in the nervous system and not from the puncture wound.

The patient continued to remain in the stuporous state and the spinal puncture was repeated the following day, the fluid at this time containing more blood than before and even more yellow. The numerical count of the spinal fluid was 4,000 red cells and 40 white cells. A Wassermann test of the spinal fluid was negative; the amount of globulin was normal, and the gold curve was negative. Culture of the spinal fluid was negative, and search for tubercle bacilli and other organisms was negative.

The following day the patient died, apparently of a respiratory paralysis. Permission was obtained to remove the brain only. The brain showed marked engorgement and congestion with thrombosis of most of the sinuses of the dura. Microscopically there were clear spaces about the blood vessels, indicating considerable serous inflammation. A frank perivascular inflammatory reaction such as was seen during the epidemic of epidemic (lethargic) encephalitis was conspicuous by its absence, although marked congestion was noted; also edema and mild perivascular lymphocytosis in some of the sections at the base of the brain.

CASE 2.—A nun, aged 25, seen at the Good Samaritan Hospital, was admitted to the hospital, Aug. 22, 1932, with the history that she had had a convulsion the day before. While at the hospital she had two generalized convulsions and vomited during one of them. She was drowsy and somnolent.

The neurologic examination showed congestion of the disks, weakness of the right side of the face, a positive Babinski reflex and clonus on the right side, and diminished abdominal reflexes on the right side.

The spinal fluid pressure registered 17 cm. of water. The fluid was bloody. The Wassermann reaction of the spinal fluid was negative; the fluid contained 8,000 red cells, 20 white cells. The fluid showed the normal amount of globulin, and the gold curve was negative.

The patient was somnolent for eight days, then began to improve, and for the time being recovered as far as her acute condition was concerned. She still showed a slight hyperreflexia on the right side.

The patient continued to be quite well for about two weeks. However, her associates noticed quite a change in her mental condition. She had been a teacher in a Catholic college. She wrote several letters to the Sister Superior of the college and these letters were returned to me for comment. The letters were quite disconnected, with a tendency to repetition and a marked inability to finish a thought or sentence. Her memory for recent events was greatly impaired. However, during this time she was up and about the room and did not complain of headache, although at times she complained of slight dizziness. She remained well till September 13, when she again became somnolent, sleeping the entire time during the day but being somewhat restless and delirious at night and complaining of headache.

Spinal puncture was repeated and at this time the spinal fluid had entirely cleared of cells and the color had returned to normal. The spinal fluid pressure was normal.

Dr. Nolan Carter was called to see the patient in consultation in order to exclude any possibility of brain tumor. He agreed with the original diagnosis of hemorrhagic encephalitis and advised against any surgical intervention.

The patient continued to be somnolent for seventeen days, the somnolence gradually deepening into coma, from which she could not be roused. The pyramidal signs originally noted reappeared. The patient died, September 30, of respiratory failure. Autopsy was refused.

CASE 3.—A white man, aged 43, seen, Aug. 23, 1932, through the courtesy of Drs. Donnelly and Crawford, had gotten up in the morning, four days before, dressed as usual, and was sitting down to breakfast, when he complained of a sudden pain in the back of the head. Following this, he vomited even before he could get away from the table. He did not fall and was not unconscious.

The patient became mentally confused with the onset of these symptoms.

At Christ Hospital, neurologic examination showed blurring of the nasal margins of the disks; the pupils were dilated, were quite active to light and in accommodation, and reacted to light with a hippus effect. The external eye muscles were normal; there was no double vision. The fifth nerve was normal on both sides. There was weakness in the seventh nerve in the left lower part of the face. The remainder of the cranial nerves were normal. The biceps, triceps, radial, knee and achilles reflexes were present but slightly hyperactive on the right side; there was also some tendency to clonus on the right at times, and positive Chaddock and Babinski signs were present on the right.

Spinal puncture was performed. The pressure was low, registering 5 cm. of water. The fluid was bloody and looked about the color of tomato juice. Centrifugated fluid was yellow, showing hemorrhage due not to spinal puncture but to bleeding in the nervous system. Repeated spinal punctures gave the same result.

Roentgenograms of the skull were entirely negative. A Wassermann test of the spinal fluid was negative; the fluid contained 150,000 red cells and 2,500 white cells. A search for organisms and fluid culture was negative.

The patient continued for two weeks to complain bitterly of headache; he was mentally confused, slept during the day, and was restless at night. Three weeks later he began to improve; he was able to be up and about the room, and returned home; he did not have headache, dizziness or somnolence. Apparently the patient is entirely well. He has since returned to his original work as salesman and is doing his work in the usual manner with no organic residuals and no evidence of mental impairment.

It might be noted at this point that none of the cases of this series have shown the slightest evidence of extrapyramidal involvement, in marked contradistinction to the cases of epidemic encephalitis which we saw from 1914 to 1922 and 1923.

CASE 4.—A man, a second year medical student at the University of Cincinnati, brought to the General Hospital, had an infection of the upper respiratory tract which was diagnosed as grip, but after two days it was noticed that the patient slept most of the time, although he could be easily roused and was quite rational when roused. After he had been in the hospital three days, I was called in consultation by the medical service. The patient complained of headache. He had positive Oppenheim and Chaddock signs on the right side and hyperreflexia in the lower extremities, more pronounced on the right. Three days later paralysis of the right leg developed with plantar reversal signs and clonus. Double vision also developed; he had paralysis of the external rectus and could not look to the left past the midline with the left eye. This lasted about two days and the patient then began to improve. He can now look to the left side but still complains of double vision. There is a nystagmus on looking to the left. This is likewise improving.

The spinal fluid pressure registered 15 cm. of water. The spinal fluid was normal except that it contained about four times the normal amount of globulin.

The outcome of this case was as follows: The patient made a complete recovery from his acute encephalitis. All the organic manifestations have entirely disappeared. However, he shows a marked asthenia. He does not want to leave the hospital and shows no desire to return to any occupation. There has been a decided let-down in his intelligence and general physical state. He shows weakness of the right leg, with the persistence of a positive Oppenheim sign.

CASE 5.—In the case of a Negro, aged 25, admitted to the medical service at the Cincinnati General Hospital, the diagnosis of influenza was made. However, the intern noticed that the patient slept most of twenty-four hours, whereon he requested a neurologic examination.

The cranial nerves were normal. The deep reflexes were exaggerated on the right side. The patient had a Babinski reflex on the right side, which could also be elicited contralaterally by stroking the sole of the left foot. He slept for about a week and afterward made a complete recovery.

The spinal fluid contained 35 lymphocytes per cubic millimeter.

I examined the patient quite carefully for any extrapyramidal symptoms but found none on discharge.

CASE 6.—A white man, aged 35, seen through the courtesy of Dr. F. X. Siegel, presented himself, Sept. 27, 1932, complaining of double vision on looking to the right. There was weakness of the external rectus muscle and weakness of the right lower part of the face; the fundi were normal and the remainder of the cranial nerves were normal. The deep reflexes were hyperactive, definitely more so on the left side. The abdominal reflexes were slightly diminished on the left. There was no reversal of the plantar reflexes, though there was a somewhat persistent sustained ankle clonus on the left side.

Spinal puncture was performed. The spinal fluid was under considerable pressure, registering 30 cm. of water. A Wassermann test of the spinal fluid was negative; the fluid contained no cells and showed a negative gold curve and a trace of globulin. The Wassermann reaction of the blood was likewise negative.

The onset had occurred a week before, with double vision and headache. The patient was quite somnolent. His wife had difficulty in rousing him during the day; he slept the greater part of the day and night. There was also a decided mental change. He was quite apathetic and confused at times. However, after the spinal puncture and two weeks' rest in bed, the patient had entirely recovered and has since returned to his work, which is that of an accountant. His superiors tell me that his work is absolutely as good as it ever was and that they can see no residuals of his confused state.

CASE 7.—A white man, aged 36, referred to me by Dr. A. L. Knight and Dr. Mary Knight Asbury, complained chiefly of headache. This headache was very severe and was frontal and occipital in character; it was so severe that the patient was unable to sit up in bed. At the same time, double vision developed. The temperature was not taken during this period.

The patient was seen by me, November 8. He still had occasional double vision for objects at a distance. He did not complain of other visual defect, vomiting or dizziness.

An account from his wife was essentially the same with the exception that she stated that he had vomited occasionally, three or four times, during the first week. There had been some diarrhea associated with the symptoms two weeks before.

Ophthalmologic examination by Dr. Mary Knight Asbury revealed considerable congestion and hyperemia of the disks. However, there was no choked disk. The pupils were small, were equal, and reacted to light and in accommodation. The external muscles of the eye at the time of my examination, November 8, were normal. The fifth nerve was normal on both sides. There was definite weakness of the seventh nerve in the right lower portion of the face with weakness of the associated muscles of the platysma myoides on the right side. The remainder of the cranial nerves were normal.

The deep reflexes were hyperactive on the right side, the abdominal reflexes were diminished on the right. There was an inconstant Babinski reflex on the right and a constant Oppenheim sign on the left. There was an unsustained ankle clonus on both sides, which was more pronounced on the right side.

Of the coordination tests, the Romberg was negative. The finger to nose test was good; the heel to knee test was good, and the gait was good. No evidence of extrapyramidal or cerebellar involvement was present. Motor power was a trifle diminished in the right arm.

The Wassermann reaction of the blood was negative. A numerical and differential count gave normal results.

A spinal puncture was performed. The spinal fluid registered a pressure of 6 cm. Queckenstedt's test was normal. The spinal fluid contained 8 cells and showed a negative gold curve. However, the globulin content was markedly increased, registering about ten times the normal amount to Noguchi's butyric acid test.

After the spinal puncture, the patient's headache immediately disappeared and on November 12 he was discharged from the hospital.

A neurologic examination, November 12, showed slight weakness of the right side of the face with still a constant Oppenheim sign on the left side and slightly diminished abdominal reflexes in the right upper quadrant on the right side. All the other signs had disappeared.

CASE 8.—A white boy, aged 7 years, admitted to the hospital, Oct. 7, 1932, in a state of coma, died forty minutes after admission.

Sunday, October 2, it was noticed that the child had a limp in the right leg. This did not seem serious. Wednesday, October 5, during the night the child woke up and vomited. Thursday, he could not take food but had no special complaints. Friday, he was seen by a physician, who did not feel that the condition was serious. During the afternoon of the same day the child went into profound coma, from which he never roused.

The temperature on admission to the hospital was around 102.4 F. The child was in profound coma and could not be roused. Respiration was of the Cheyne-Stokes type; the skin was flushed.

Examination showed fixed pupils of moderate dilatation. The right pupil was larger than the left. Corneal reflexes were not present. The eyegrounds were normal. The head, neck and abdomen were normal. The blood pressure was 106 systolic, 40 diastolic. The extremities were well developed but somewhat spastic. The Kernig sign was slightly positive. Superficial reflexes were absent. The knee jerks were hyperactive bilaterally. Plantar reversal signs were all positive on the right.

Spinal puncture on admission showed a pressure of 33 cm. After the withdrawal of 7 cc. of fluid, the pressure still remained 33 cm. The fluid was blood tinged and contained 24,000 red cells per cubic millimeter. The Wassermann test of the spinal fluid and the culture proved to be negative.

A short time after examination, respiration practically ceased and caffeine and artificial respiration were used in an attempt to revive the child, but death occurred within forty minutes after admission.

CASE 9.—A boy, aged 3 years, entered the Children's Hospital, Aug. 20, 1932. August 13, the boy did not eat his supper; the same evening his mother noticed that he had a fever when she put him to bed. The fever continued throughout the night. The patient was restless, did not sleep well, and was irrational.

The following morning the child was stuporous. A physician was called in and the axillary temperature was found to be 104. About 1 p. m. that day the child began having convulsions, which were continuous until about 7 o'clock. The convulsions started with a cry of pain and a twitching of the right arm. Following the period of convulsions, the patient was entirely stuporous and completely disoriented. A coma supervened, which lasted forty-eight hours.

It was noticed that there was marked weakness, and at the first convulsion paralysis of the right arm and leg occurred. Since the time of the convulsions apparently the left side was also involved, but it has since recovered. The convulsions were always unilateral, involving either the right or the left side, most of the time the right.

The patient was very lethargic and irritable but well nourished. There was some serous nasal discharge. The tonsils were small; there were few cervical glands. The chest and abdomen were clear.

Neurologic examination revealed normal pupils, which reacted equally. A right sided ptosis with facial weakness was noticed. The right arm and hand were decidedly weaker than the left. The deep reflexes were increased on the right side. There was plantar reversal on the right side. There was partial flaccid paralysis of the right leg. Neck rigidity was not present, and there were no signs of meningeal irritation.

Lumbar puncture was done on admission; the fluid was exceedingly bloody. This was repeated a few hours later; the fluid was still bloody. Fluid from cistern puncture was found to be the same color as fluid from lumbar puncture. A pressure of 15 cm. of water was registered. Lumbar puncture, repeated August 21, 26 and September 5, showed a range in pressure from 8 to 10 cm. of water. On repeated tap, the fluid became less bloody.

September 12, lumbar puncture was repeated and revealed spinal fluid with a xanthochromic tinge. The fluid contained 10 cells and an increase of globulin (?).

The child's general condition improved daily and he was discharged September 22, apparently without residuals. He was seen recently in the Children's Hospital clinic and apparently has recovered entirely.

Examination of the urine was negative. Examination of the blood showed: red blood cells, 3,100,000; hemoglobin, 60 per cent; white blood cells, from 3,600 to 4,000; neutrophils, 49 per cent; basophils, 3 per cent; eosinophils, 2 per cent; lymphocytes, 38 per cent; large mononuclears, 4 per cent; transitionals, 4 per cent. The tuberculin test was negative. Wassermann tests of the blood and spinal fluid were negative.

CASE 10.—A white woman, aged 24, seen through the courtesy of Drs. Ravine and Weiss, had become ill with mild gastro-intestinal symptoms and fever about Nov. 1, 1932. She later became somnolent and one week after the onset was admitted to the Jewish Hospital. At that time the spinal fluid contained 28 lymphocytes. Two days later the patient developed meningeal signs, with weakness of the right side of the body. Cistern and lumbar punctures showed bloody and xanthochromic spinal fluid. The temperature ranged from 102 to 103 for several days.

Neurologic examination showed bilateral choked disk, paralysis of the right side of the body, neck rigidity, positive Kernig sign, and a positive Babinski reflex on the right side. There were also plantar reversal signs on the left side as well as on the right. Abdominal reflexes were absent on the right and diminished on the left.

When last seen, November 14, spinal puncture was repeated and revealed a xanthochromic spinal fluid with slight increase in globulin; the Wassermann reaction was negative and there was a negative gold curve. The patient's condition grew steadily worse and she died six weeks after the onset of acute symptoms.

CASE 11.—A white baby girl, aged 8 months, admitted to the General Hospital, Aug. 22, 1932, with a diagnosis of acute anterior poliomyelitis, became ill, Friday, August 26, at which time stiffness of the neck was noted. In addition, the parents thought there was evidence of a slight cold. Sunday, August 28, paralysis of the left arm was noticed; September 1, paralysis of the right arm supervened.

The patient was irritable and restless for two days before admission and vomited the day before admission.

Examination did not reveal any abnormalities of the cranial nerves. The pupils were regular and reacted to light and in accommodation. There was no strabismus and no nystagmus. The extra-ocular muscles were normal. Facial asymmetry was not present. There was weakness and flaccid paralysis of both upper extremities. Abdominal reflexes were hyperactive bilaterally. Reflexes were present in the lower extremities.

On admission, the spinal fluid was clear and contained 10 cells. The following day the puncture was repeated and the fluid was found to be slightly blood tinged. The cell count was 82. Repeated spinal punctures showed an increase in globulin, and the cell count varied between 10 and 15 cells.

September 12, an external strabismus of the left eye was noted. This strabismus had cleared up at the time of discharge. The child had also regained most of the function in the upper extremities at this time. The patient recovered completely.

Laboratory examination revealed: white blood cells, 15,000; polymorphonuclears, 45 per cent; lymphocytes, 49 per cent; large mononuclears, 6 per cent. Examination of the urine was negative. Wassermann tests of the spinal fluid and of the blood were negative.

CASE 12.—A white boy, aged 2½ years, was admitted to the hospital, Nov. 15, 1932, chiefly because of convulsions. In the middle of July the parents noted that the child would make peculiar facial movements and draw his arms in "spasms" at times. About September 1, the child began having definite convulsions, characterized by falling, unconsciousness, twitching of the face, rolling of the eyes, gritting of the teeth and expression of saliva. Convulsions occurred five and six times daily, usually at night, lasting about one minute. The child was unable to walk for a month previous to admission. It was noticed that the right leg and arm were paretic at that time.

The child's past history is without incident and he apparently developed in normal fashion. The only diseases in the past were German measles (?), a probable drug eruption while taking medicine for his convulsions, and otitis media followed by myringotomy in April, 1932. The child walked at the age of 11 months, talked at 1 year, talked well at 2, and now is only able to mumble.

He was in the Cincinnati General Hospital in September, 1932, for observation. He was regarded as epileptic and was discharged after a few days.

The child was pathologically happy; he was undisturbed by an examination and did not seem to mind the Wassermann needles, throat smears, and the like. Right sided convulsions occurred, lasting one minute, in which the eyes turned to the left. He was unable to talk; he merely mumbled.

Results of the neurologic examination were as follows: 1. The fundi were found to be normal by Dr. Ray. 2. The extra-ocular muscles appeared not to act synergistically. 3. There was right facial and lingual weakness. 4. The right side presented hyperactive deep reflexes, diminished abdominal reflexes, a few beats of ankle clonus, and plantar reversal. There was also a suggestive Babinski reflex on the left. 5. There was marked euphoria. The child did not cry throughout the entire examination. 6. The gait was extremely "wobbly" and there was some truncal ataxia and circumduction of the right leg. The right arm was apparently ataxic.

A spinal puncture was performed. The fluid was clear, registering a pressure of 16 cm., 8 cells, sugar +, globulin —.

Examination of the blood showed: red blood cells, 5,200,000; hemoglobin, 90 per cent; white blood cells, 9,100; polymorphonuclears, 40 per cent; eosinophils, 1 per cent; lymphocytes, 53 per cent; transitionals, 6 per cent.

Urinalysis was negative.

Roentgen examination showed separation of the suture lines (progressive on subsequent plates).

Ventriculography showed a failure of proper filling of the left anterior horn.

The case was diagnosed as brain tumor, and a craniotomy was performed. When the dura was opened, the brain was seen to be inflamed and cherry-red. The patient died a week later. Sections of the brain disclosed marked glial reaction with neuronophagia.

CASE 13.—A white youth, aged 19, entered the hospital, Nov. 25, 1932, in coma. On the day of admission to the hospital he arose and pursued his work as a baker as usual. He left his home without complaints. About 2 p. m. he began to complain of occipital headache, blurring of vision and diplopia. He went home, vomited and lapsed into coma.

The patient was strong and well developed. He was lying in bed in a semicoma. The neck was retracted. There was an external squint of the right eye. The disks showed early choking. There was no nystagmus. Other cranial nerves appeared normal. The Brudzinski signs were positive; the Chvostek signs, negative. The Kernig sign was positive bilaterally. The deep reflexes were equal and hyperactive. The abdominal and cremasteric reflexes were present. The Babinski and Chaddock signs were positive bilaterally.

A lumbar tap released grossly bloody fluid under more than 30 cm. pressure.

Blood examination revealed: red blood cells, 4,800,000; white blood cells, 10,500. The Wassermann test of the blood was negative.

Urinalysis was negative.

A spinal fluid count, November 26, showed: red blood cells, 232,000; white blood cells, 350; polymorphonuclears, 85 per cent; lymphocytes, 14 per cent. December 2: color, xanthochromic; pressure, 14 cm.; red blood cells, 220; lymphocytes, 60 per cent; globulin, + + + +. December 4: color, xanthochromic; pressure, 12 cm.; red blood cells, 330; white blood cells, 160; globulin, + + + +.

The patient made a complete recovery, the spinal fluid gradually becoming clear.

CASE 14.—A white boy, aged 10 years, was admitted to the Bethesda Hospital, Nov. 9, 1932, forty-eight hours after an attack of vomiting and unconsciousness while at school. The vomiting continued for twenty-four hours. The day before admission the mother noted that the child's neck was stiff and sore.

The neck was rigid. The Brudzinski and Kernig signs were positive, with a suggestive Babinski reflex and increased knee jerks.

The spinal fluid on admission was bright red, with blood + + + +. There was no sugar. The spinal fluid the next day was moderately red, with blood + +.

The patient was dismissed after ten days of hospitalization and seemed to have completely recovered.

CASE 15.—A Negro, aged 52, entered the hospital in coma shortly before noon, Dec. 9, 1932. The history given by his wife revealed a fulminating illness. On the night before admission the patient retired as usual and appeared to be in excellent health. On arising in the morning, he complained of a gnawing epigastric pain and started for the bathroom.

His wife noticed that he staggered, and he told her that he could not see. His vision soon returned; he took some sodium bicarbonate for his stomach. He vomited once or twice and returned to bed. His wife went to work and was called home at 9:30 a. m.—about two hours later—because of the gravity of the patient's symptoms. At this time he was totally unconscious and had had one generalized convulsion. The convulsions continued at irregular intervals and the patient failed to regain consciousness.

On examination in the hospital shortly before noon, the patient was in deep coma. His neck was somewhat stiff and turned slightly to the right. The Brudzinski and Kernig signs were slightly positive. The pupils were contracted. There was nystagmus to the right and hyperreflexia of the deep reflexes in the upper extremities and a reflexia in the lower extremities. Abdominal and cremasteric reflexes were absent. There was no plantar response. A lumbar tap released bloody fluid under normal pressure which contained 190 white blood cells, 80 per cent lymphocytes, 20 per cent polymorphonuclears and 2,500 red blood cells.

Systemic examination was without noteworthy results.

The patient failed to rouse from his coma; he had thirteen generalized convulsions and died about two hours after admission. The duration of his illness was about seven hours altogether.

At necropsy, the viscera showed few changes. Small healed tuberculous lesions were present in both apexes. There was marked congestion of the kidneys and slight congestion of the liver.

On removal of the calvarium, a slightly tense dura was found. A moderate amount of clear fluid was seen in the subarachnoid space. The pia-arachnoid over the entire brain was slightly clouded, more at the base and most marked over the cerebellum and sylvian fissures. Congestion on the surface of the brain was most striking, even the small capillaries and venules appearing quite prominent over the surface. Cut section of the brain revealed prominent vascular markings without petechiae. The same condition obtained in the spinal cord, where the gray matter stood out prominently and was pink, rather than normally gray, because of its congestion. The venous sinuses, paranasal sinuses and middle ears were found to be normal. Microscopic section revealed lymphocytes in the pia as well as perivascular lymphocytes in the temporal lobe.

CASE 16.—A white man, aged 57, was admitted to the hospital, Dec. 10, 1932, in deep stupor. The patient lived in a factory in the downtown district, where he was a watchman. December 9, when his boss left for home, the patient seemed to be in entirely good health. When the boss returned the following morning, December 10, he found the patient to be extremely listless and lethargic. As the day wore on, the lethargy progressed to somnolence. The patient fell asleep when not prodded into wakefulness. He was brought to the receiving ward in the middle of the afternoon. Sugar and a trace of acetone were found on urinalysis, and the patient was admitted for impending diabetic coma.

The past history was not relevant.

He appeared to be well developed and nourished when he was seen lying in bed, asleep. Respirations were regular, deep and of average rate. The Kussmaul phenomenon was not present. The neck was somewhat retracted, without opisthotonos. The patient could be roused on stimulation and would be able to answer questions intelligibly for a few moments, but his attention would soon fall away, his eyes would close and he would be asleep again. This was repeated many times. In lucid moments he was found to be oriented for time and place, but free of delusions or hallucinations.

Systemic examination proved entirely negative. The blood pressure was 130 systolic, 70 diastolic.

On neurologic examination the fundi were normal. There was ptosis of the right eyelid. The pupils were equal, round and reactive. The extra-ocular muscles were normal. There was weakness of the left side of the face and tongue. There was slight hyperreflexia on the right side, with a few beats of ankle clonus and a positive Oppenheim sign. The abdominal reflexes were all absent; the cremasteric reflexes were present bilaterally. There was eversion of the right foot in repose. The Brudzinski sign was positive. The Kernig sign was positive bilaterally.

A lumbar tap released blood-tinged fluid under normal pressure, which contained 32,000 red blood cells and 120 white cells per cubic millimeter.

On admission the white blood count was 14,000; three days later it was 8,200.

The patient improved daily, so that a week after admission he was far less somnolent, took food avidly and became almost completely oriented; he was amnesic concerning the first three or four days of his illness. Daily spinal taps for four days showed a gradual diminution in blood, so that on the fourth day the red blood count was 3,000 and the white blood count, 30. The patient was febrile for the first five days, with a temperature never exceeding 101 F.

Two monkeys were inoculated intravenously with 100 cc. each of the patient's spinal fluid on the second day. The monkeys were apparently without symptoms fourteen days later.

About two weeks after admission, the patient was allowed to get up. He was soon found to be meddlesome and noisy in the ward. He became overbearing, assertive and somewhat euphoric. His memory and calculation seemed to be impaired. Affective lability, chiefly bellicosity, began to assert itself, and it became necessary to transfer the patient to the psychiatric service, where he continues to show mood disturbances, is extremely argumentative and is willing to fight with every one.

CASE 17.—A white girl, aged 2½ years, born at full term and normally developed, was playing about her home on the afternoon of Jan. 5, 1932, and appeared to be in entirely good health. About 6 p. m. she complained of abdominal pain and she vomited. These symptoms increased in severity and at about 10:30 she had generalized convulsions. Home remedies and enemas failed to alleviate the condition, and Dr. Kurz was called at 2 a. m. He found the child in profound coma, sweating profusely. Respirations were deep, rapid, regular and noisy. The axillary temperature was 103 F. A tachycardia was present. No other systemic pathologic changes were found. The neurologic examination revealed constricted equal pupils, which reacted sluggishly to light, showed a lateral nystagmus, and gave no signs of meningeal irritation. Waves of cyanosis passed over the child's skin as he was observing her. She died on the way in the Cincinnati General Hospital. She was pronounced dead at 4 o'clock in the morning. The duration of symptoms from the onset was only ten hours.

The coroner's autopsy revealed that the liver was yellowish brown and friable. The edges everted on section. Except for a large amount of mucus in the descending colon, the mucosa of the entire gastro-enteric tract appeared normal.

The kidneys were slightly swollen. The edges everted on section. The cortices had a pasty yellow color.

The usual incision through a normal scalp and calvarium revealed a slightly distended dura. When the dura was opened, a large, soft, extremely injected brain was seen. There was some flattening of the convolutions and narrowing of the sulci. The pia-arachnoid membrane appeared somewhat thickened in areas, and the spinal fluid was very slightly clouded. No tubercles were found after careful search. On horizontal section of the brain the gray matter was seen to be moderately swollen and had a peculiar bluish-gray appearance. The vessels through the white matter were markedly congested, but no definite petechiae were found. There was no fracture of the skull.

Microscopic section of the brain showed lymphocytosis in the pia with perivascular edema in the brain.

CASE 18.—A white girl, aged 11 years, Jan. 12, 1933, complained to her mother of being sick at her stomach. She vomited five times in the afternoon of that day. During the night the vomiting ceased, but the patient was restless throughout the night. Toward morning, facial convulsions were noted and the patient was in coma the entire day and was brought to the hospital, Jan. 13.

There had been no recent illness; the past history was not relevant.

On admission, neurologic examination showed blurring of the disks, but the pupils were equal and reacted. There was slow floating lateral nystagmus with occasional lack of synergistic eye movement. The deep reflexes were equal and active in the upper extremities, and equal and hyperactive in the lower extremities with a few beats of ankle and patellar clonus. Abdominal reflexes were absent. The toes of the patient's feet were chronically in the Babinski position, and this was accentuated on plantar stimulation. There were marked Kernig and contralateral Brudzinski signs.

On admission, the temperature was subnormal and rose rapidly to 104.5; it returned to normal within two days. The patient remained in coma for thirty-six hours after admission and awoke feeling entirely well. There was no residual headache or any other complaints.

After a convalescence of about ten days the patient was discharged from the hospital completely well, without residual neurologic changes. At no time did systemic examination reveal any pathologic changes.

A lumbar puncture was performed on admission, January 13. The fluid showed normal pressure, 100 white cells, 35 red cells, and an increase in globulin.

January 14, the spinal fluid pressure was normal, with 110 white cells, 215 red cells and globulin increased.

January 15, the white blood cells numbered 88, the red 22; globulin was increased. The spinal fluid and blood Wassermann tests were negative.

January 15, the blood sugar was 104. Spinal fluid sugar taken simultaneously was 64, establishing a ratio of 60 per cent.

Spinal puncture was not done before the patient was discharged.

CASE 19.—A male patient entered the hospital, Jan. 1, 1933, in coma. The onset occurred five days previously. Dec. 27, 1932, he had a frontal headache and was restless. This continued until after admission, when he became extremely drowsy, vomited and had convulsions of five minutes' duration each, which was followed by coma.

When seen on admission, the patient was in coma and was extremely resistive and restless. He vomited once and had three involuntary stools. There were signs of marked meningeal irritation. Bilateral plantar reversal signs were present. The temperature was subnormal on admission but soon rose to 102 F.

On the morning following admission, January 2, the patient was conscious, mentally clear, drowsy, complained of frontal headache and was amnesic; he had been amnesic since the onset of the convulsions. At that time, examination showed slight weakness of the left arm and face and paretic eversion of the left foot, slight diminution of the abdominal and cremasteric reflex on the left, and a positive Strümpell sign on the left. The patient's headache cleared within a few days and he has been convalescing without incident in the hospital since that time.

The temperature reached normal within two days and has remained so.

Examination of the spinal fluid on admission showed clear fluid, an excess of globulin, and 262 white blood cells.

January 7, the fluid was uniformly bloody, globulin increased, and white blood cells numbered 332 and red blood cells 13,000.

January 9, the white blood cells numbered 148; red blood cells, 1,850.

January 12, the fluid was slightly xanthochromic, the globulin increased; white blood cells numbered 145; red, 8.

January 12, the blood sugar was 90. Spinal fluid sugar taken simultaneously was 61 mg., establishing a ratio of 66 per cent.

The Wassermann test for both blood and spinal fluid was negative. Blood culture was negative.

CASE 20.—A Negro girl, aged 4 years, was first admitted to the Cincinnati General Hospital, April 15, 1932. At that time she had had two convulsions. She remained in the hospital for a few days and was discharged, apparently well.

She was again admitted to the hospital, Jan. 10, 1933. She had been well from the time of her first admission to the time of the present admission, at which time she was suffering with generalized convulsions, frothing at the mouth and biting of the tongue. The convulsions were generalized in character, although there was more jerking on the left side of the body than on the right. The head and eyes were turned toward the right. The pupils were unequal, the right being larger than the left; both reacted to light. Corneal reflexes were absent. There was spasm of the orbicularis on the left side. Deep reflexes were not obtained. Abdominal reflexes were absent. There were no signs of plantar reversal.

The spinal fluid was under normal pressure and showed an excess of globulin. Two counts of the spinal fluid were made. The first count showed 22 white cells and another count showed 26, predominantly lymphocytes.

The patient died within fourteen hours after admission.

Microscopic sections of the brain showed perivascular degeneration of the brain with glial reactions.

This case will be dealt with more in detail in a later paper.

COMMENTS

Clinical data so far suggest that in this epidemic there are three types of cases:

1. A group represented by serous infiltration with clinical meningo-encephalitic signs plus increase in globulin in the spinal fluid.

2. A group that shows clinical meningo-encephalitic symptoms with lymphocytosis in the spinal fluid.

3. The most severe form of the disease is represented by those cases in which hemorrhage occurs in the spinal fluid accompanied by increase in globulin; also increase in lymphocytes in the spinal fluid.

Discussion as to etiology is purely speculative at present. In the beginning of the epidemic, both infectious and toxic origins were suggested. The disease was not socially stratified, as one would expect in an epidemic due to the ingestion of a toxin such as was observed during the epidemic of so-called jake paralysis. It is my opinion that the disease is infectious in origin.

When I first began to see this disease I suspected almost every case of organic brain disease of being encephalitis. Several mistakes were made in diagnosis for this reason. A study of these mistaken diagnoses represents pretty well the differential diagnosis of the disease. Differential diagnosis must be made from (1) cerebral arteriosclerosis with hemorrhage; (2) meningeal hemorrhage due to rupture of a syphilitic aneurysm; (3) idiopathic meningeal hemorrhage as a result of status thymicolymphaticus, of which I have seen three cases; (4) brain tumor with hemorrhage from the tumor, which must be considered, although this was not encountered in our mistakes in differential diagnosis; (5) skull fracture with meningeal hemorrhage, which is also to be considered, although this can be easily eliminated with history and roentgen studies.

Our mistakes in diagnosis enabled us to reason better concerning our clinical cases which went on to recovery. In these cases syphilis has been excluded by negative Wassermann tests, tuberculous meningitis has been excluded by the clinical outcome, and arteriosclerosis has been excluded by physical and urinary examination.

SUMMARY

The twenty cases reported were of an unusual type of encephalitis. Hemorrhage into the spinal fluid was a

prominent feature, occurring in thirteen of the twenty cases in my series. The spinal fluid pressure was definitely increased in only three cases. A lymphocytosis was observed in seven cases. Increase in globulin was noted in five cases in which no bleeding occurred into the spinal fluid. This suggests a serous infiltration in those cases with perhaps increased permeability of the pial vessels, which in more severe forms allowed blood cells both red and white, as well as serum, to escape from the blood vessels.

Somnolence, at times deepening into coma, was a prominent feature, occurring in twelve of the series of my twenty cases. Coma was observed in nine cases. Double vision occurred in six of the twenty cases. Pyramidal signs constituted a prominent feature, occurring in fourteen of the twenty cases. This is in marked contrast to the cases observed in the epidemic of so-called lethargic encephalitis, in which extrapyramidal signs were more commonly observed than pyramidal signs. Another marked difference in the cases noted in this series from those of epidemic encephalitis is that in the present series no extrapyramidal residuals have so far been noted.

Convulsions beginning with jacksonian symptoms passing into generalized convulsions were observed in seven cases, bespeaking motor cortex irritation; death occurred in nine cases; congestion of the disks occurred in seven cases, and a choked disk was observed in two cases.

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Clinical Notes, Suggestions and New Instruments

ELECTROCAUTERIZATION OF THE CERVIX IN CHILDREN

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A complete review of the literature [1] reveals but one mention of cauterization of the cervix in children. The present communication is based on fifty cases in which this procedure was done during the past four and a half years in the gynecologic service of Dr. E. W. Titus in the Children's Hospital, Washington, D. C.

Stein [2] and his co-workers emphasized the occurrence of involvement of the cervix in inflammations of the lower genital tract in children. At the Children's Hospital we had by that time (December, 1928) already begun cauterization in the cases of chronic cervicitis in which medical treatment was unavailing. More than 70 per cent of our cases were gonorrheal by positive smears, and probably 20 per cent more were of gonorrheal origin.

In our series there was practically complete cessation of all discharge in 64 per cent of the cases, marked improvement in 23 per cent, and some improvement in 13 per cent. Occasionally, two cauterizations were necessary for more complete removal of infected cervical glands. Our youngest patient in whom cauterization was done was 7 years of age and our oldest 14 years, the average being 12 years. All patients were constitutionally much improved. Menstruation did not vary from the usual in any respect. There was no case of obstructive dysmenorrhea. All patients were examined and probed postoperatively without evidence of massive scarring. There was no postoperative menorrhagia.

The method used was similar to that used in adults. Cauterizations were done under nitrous oxide-oxygen anesthesia, small Sims speculums being used for exposure. Radial incisions were made so as to destroy thoroughly most of the cervical glands, stricture being avoided by not incising deeply. Of late, we have been employing cauterization in older girls (over 10 years of age) in the dispensary, using the virginal Graves speculum without anesthesia.

I earnestly recommend the use of the electrocautery in children with chronic cervicitis when the disease has become chronic from neglect and the active focus is in the glands of the cervix, and there is persistent discharge of mucus. I believe it eminently safe and helpful.

1801 Eye Street N.W.

1. Notes, Bernard: Urethrovulvovaginocervicitis, Arch. Pediat. **58**, January, 1930.
2. Stein, I. F.; Leventhal, M. L., and Sered, Harry: Cervicovaginitis, Am. J. Dis. Child. **37**: 1203 (June) 1929.

METHYLENE BLUE SOLUTIONS IN THE TREATMENT OF CARBON MONOXIDE POISONING

J. C. GEIGER, M.D., San Francisco
Director of Public Health

Recent press dispatches have reported the use of methylene blue solutions in the treatment of cases of carbon monoxide poisoning in San Francisco. This brief note is presented for the purpose of correcting certain statements made in the newspapers and of clarifying impressions that may have been gained from reading these news stories.

Following shortly the recommendation that intravenous injections of methylene blue (1 per cent aqueous solution, antoclaved at 15 pounds pressure for fifteen minutes) might well be used in the treatment of cyanide poisoning, the suggestion was made, on the basis of certain experimental work done by Dr. M. M. Brooks, that the same form of treatment might rationally be administered in cases of carbon monoxide poisoning. In four instances, thus far (late in January, 1933), the method has been tried in the Emergency Hospital Service of the San Francisco Department of Public Health. In two of the four instances, cyanide poisoning was present. The first of these has been reported.[1] While cyanide was present in the stomach contents of the second would-be suicide, there were no apparent signs of fully developed cyanide poisoning. (no cyanosis, no marked disturbance of heart beat or respiration). Gastric lavage was fortified by the intravenous injection of 50 cc. of the methylene blue solution, and there were no remarkable developments except that the young woman "completely recovered." Had treatment been instituted after a longer interval, which would have permitted the absorption of sufficient quantities of cyanide to produce demonstrable signs of cyanide poisoning, the effects of methylene blue might have been as dramatic and convincing as in the first case (C. R.); but it must be admitted that this second case did not offer the same, or even a comparable, opportunity for a clinical test.

The third recorded case in San Francisco in which methylene blue was used was as follows:

A. M., a man, attempted suicide, Dec. 20, 1932, utilizing the exhaust from a motor car. A flexible tube was used to convey the gases from the exhaust of the motor to the closed body of the car. A meter reader of the Pacific Gas and Electric Company (Mr. Donald Coll) found the patient in the latter's private garage. He was sitting in the car with the motor running. Although the man was unconscious and apparently lifeless, he was quickly removed to the open air and was given artificial respiration by Mr. Coll. The Emergency Hospital Service received a call for an ambulance at 2:40 p. m. and augmented the artificial respiration with the inhalator (using carbogen) at 2:45 p. m., and this was continued for a period of twenty minutes. The steward's report (R. L. Nelson) states that: "On arrival of the ambulance, all clinical signs of life were negative, no radial pulse, no apparent heart sounds, respiration had entirely ceased, pupils dilated and fixed, deep 'blue' cyanosis, profound rigor of neck and body muscles and chest rigid, making it very difficult to give artificial respiration. . . . It was fully four or five minutes before any reaction took place. When the patient was removed from the street [to the Park Emergency Hospital] his pulse was 80, full and forcible, respiration about 14, and a very small amount of cyanosis."

1. Geiger, J. C.: Cyanide Poisoning in San Francisco, J. A. M. A. **99**: 1944 (Dec. 3) 1932.

On admission to the Park Emergency Hospital at 3:10 p. m., according to the hospital records, the patient was unconscious and had a pulse rate of 126 (of weak character), and a respiratory rate of 36. He was given 50 cc. of a 1 per cent solution of methylene blue, intravenously, and external heat was applied. "Some response" was noted after this first injection, but at 4 o'clock a second injection of 50 cc. was given "with marked result. Patient able to speak coherently. Relapse. Methylene blue 20 cc. 1 per cent at 4:30 p. m. renewed response" completes the hospital record of treatment given. The patient was removed to a private hospital the following day, at which time his condition was quite satisfactory. His attending physician expressed his opinion to the effect that he was quite confident that his patient would not have survived had the usual treatment not been augmented by the use of methylene blue. The story of this case is presented in some detail in an effort to emphasize the importance of the use of artificial respiration, which should have recognition for the rôle played in the successful treatment of this case of what was probably carbon monoxide poisoning.

In the most recent, or fourth, case treated with methylene blue, while there was a demonstration of the almost immediate effect of the dye there was demonstrated also the definite need for more accurate data of scientific interest.

J. H., a man, who spoke only Spanish fluently and whose story it was difficult to obtain in detail, was brought to the Central Emergency Hospital, Jan. 15, 1933, in an unconscious state, from "gas poisoning." The emergency surgeon's report states that he was "cyanotic, stiff and rigid, unconscious, with glassy stare of eyes. Pulse weak and thready. Respiration shallow but present." The rate was not given. From the patient's and his roommate's story it was learned that there was an unvented gas heater in their apartment. This was lighted and the patient prepared for a bath. He remembers the bath but no incident subsequent to that until he regained consciousness in the hospital. "About thirty seconds" after the intravenous injection of methylene blue, and without the administration of any gas by inhalator, "the patient turned pink in color and started to scream, 'Turn off the gas!' Pulse became stronger, respiration more forceful, and about two minutes later we conversed together in Spanish. Conversation on his part was intelligent and coherent." The patient himself was astounded at the entire episode and believed that he had been "brought back from 'sure' death."

In these cases one cannot state positively that the cause of the condition was carbon monoxide, although, even in the absence of laboratory data, the former case was probably due to this gas. In the latter case, however, since natural gas is almost entirely free from carbon monoxide, the question arises: Was the condition due to carbon monoxide as a product of incomplete combustion in an unvented appliance, or was it due to "oxygen want" due to the presence of natural gas from a leaking appliance or from an unlighted portion of the burner?

COMMENT

The mechanism through which the dye acts is one that has not been entirely or adequately explained. All workers seem to agree that it involves the oxidation-reduction processes, but all are agreed, apparently, also, that these processes are probably quite complex and that other effects, such as stimulation of the respiratory, circulatory and heat regulatory centers, likewise enter into the complete explanation. Hanzlik [2] suggests also that the dye might be useful in hemorrhage and shock but that the effects would probably be fleeting in character, and the comparatively large amounts of the dye in the quantities of fluid necessary in such cases might produce deleterious results, since the dye itself possesses a certain degree of toxicity.

Methylene blue, and possibly dyes other than methylene blue, might be found useful in treating other conditions than cyanide poisoning in which the oxidation mechanisms are depressed or inhibited and the effects are apt to be permanent rather than fleeting, as they are in hemorrhage, shock, carbon monoxide poisoning, and other comparable situations. "Even in diabetes mellitus, in which the tissues may be at fault in their inability to properly oxidize sugar, it is conceivable that a dye which would satisfactorily promote oxidation (and not at the same time be toxic when used over relatively long periods of time) might be of some value."

2. Hanzlik, P. J.: Personal communication to the author.

CONCLUSION

The use of methylene blue (methylthionine chloride, U. S. P. medicinal) in the treatment of cyanide or carbon monoxide poisoning is still in the experimental stages. Its use, in the four cases cited, shows promise, but the need for more accurate observation and more complete data is obvious.

Department of Public Health.

Council on Physical Therapy

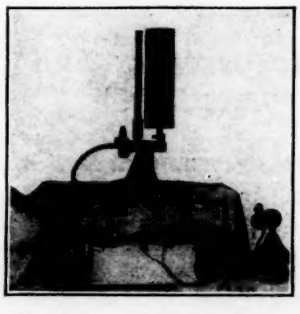
THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

H. A. CARTER, Secretary.

TITUS INTRAVENOUS INFUSION APPARATUS ACCEPTABLE

The Titus Intravenous Infusion Apparatus, designed by Dr. Paul Titus of Pittsburgh, is manufactured by Feick Brothers Company of Pittsburgh. According to the description supplied by the firm, it is an apparatus for intravenous injection of dextrose solutions consisting essentially of two parts: (1) that comprising the tank, the timing and volume gage, the dial valve, and the base, and (2) the heating unit with infusion thermometer.

The heating unit is a half inch Pyrex glass tube with tapering end for tube connections fitted tightly into a thin aluminum sleeve around which is wound nichrome wire, having 20 ohms resistance, embedded in an insulating cement, and is connected as a part of tubing leading from the infusion instrument to the needle in the vein. The infusion thermometer is incorporated within the usual glass adapter for needles.



Titus Intravenous Infusion Apparatus.

It is claimed by the manufacturer that this instrument, by regulating the rate of intravenous injection of dextrose solution closely to the physiologic ability of the body to utilize dextrose, gives the following therapeutic effects: (*a*) It permits a maximum therapeutic effect from a given amount of injected dextrose by assuring maximum utilization and by preventing wasteful "spill" through the kidneys; (*b*) it provides accurate dosage of dextrose, since urinary loss from over-rapid injection likewise means dosage loss to an unknown degree; (*c*) it prevents overstimulation of endogenous insulin production, since the physiologic rate of utilization is not exceeded; (*d*) it prevents velocity reactions; (*e*) it prevents the injection of cooling or cold solutions. An additional therapeutic feature, according to the firm, is the valve of this instrument especially designed for use in giving venoclysis or "intravenous drip"; and that it also may be used for dextrose in salt solutions and acacia dextrose.

The company claims that citrated blood transfusions may be given and heated while being given. This use, according to the firm, was not the primary purpose of the instrument and its use for this purpose is not especially featured or recommended by the firm solely in order not to confuse or complicate the main issue for which the instrument was designed; namely, to eliminate the faults in the intravenous administration of dextrose.

No adjustment is required for heat control, and any interruption to the flow, such as from dislodgment of the needle, is apparent either by a glance at the gage or by the evidence of a sudden rise in temperature of the solution as seen in the infusion thermometer at the needle. The heat should be turned off until the difficulty can be found and adjusted.

Overheating does not occur if the flow of fluid into the vein is proceeding properly. It can occur if stoppage of flow takes place from any cause and is not detected reasonably soon. If still undiscovered and the patient is unconscious, the needle becomes hot and the skin could be blistered.

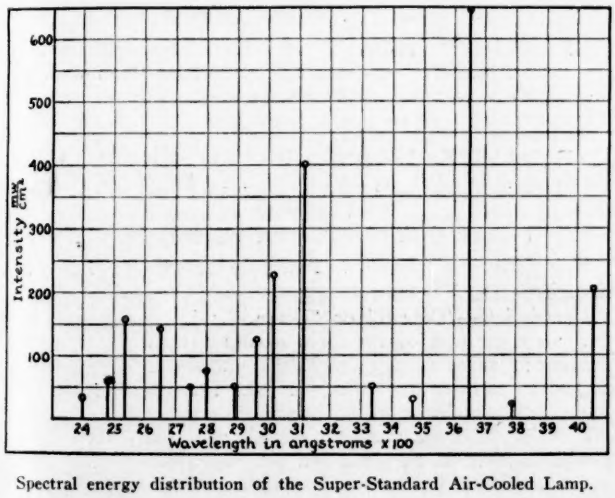
There is no occasion for such stoppage to go undiscovered, writes the company, if the person supervising the injection tests the flow rate by watching the gage as described, at frequent intervals, or if he reads the infusion thermometer at the needle at the same intervals. Overheating cannot go undiscovered if thermometer readings are made, and if the patient is conscious even this is not entirely necessary. If the patient is conscious, the injections and the patient should not be left alone for this and other equally obvious reasons.

The Council investigated the apparatus. It holds 500 cc. of fluid. The opening in the container for the solution is large and unless covered with a sterile towel or gauze is a theoretically potential avenue for infection from droplets suspended in the air. Once the apparatus is taken from its sterile covering and the solution is running, any adjustments of the dial might contaminate that part and the directions specify that the valve face should be wiped with an alcohol sponge before such adjustments are made.

It is agreed that no mention in advertising matter will be made of dextrose compounds or any other medicaments that have not been accepted by the Council on Pharmacy and Chemistry. In accordance with the aforementioned, the Council on Physical Therapy declares the Titus Intravenous Infusion Outfit acceptable for inclusion in its list of accepted devices.

BURDICK SUPER-STANDARD AIR-COOLED LAMP

The Super-Standard Air-Cooled Lamp, manufactured by the Burdick Corporation, Milton, Wis., was accepted in a report published in THE JOURNAL, July 30, 1932, page 388. At that time the emission characteristics were not available. In the meantime the firm has obtained the measurements in a laboratory acceptable to the Council. The data presented are on the basis of the filter method recommended by the International Congress of Light.



Spectral energy distribution of the Super-Standard Air-Cooled Lamp.

Super-Standard Air-Cooled Lamp, Type A-985 Burner in Casing

	Mm.	Mw. Cm.²
A. Intensity through filters:		
1. Without any filter	838 × 14.29	11,975
2. With Noviol-A and water cell	134	1,915
3. With Barium Flint and water cell	224	3,201
4. With Pyrex Glass and water cell	252	3,601

	Mw. Cm.²
B. Intensities of spectral regions:	
1. Total (no filter)	11,975
2. 2,000 A — 2,804 A	527
3. 2,894 A — 3,132 A	806
4. 3,342 A — 4,047 A	976
5. 4,060 A — 5,790 A	1,516
6. 5,790 A — 14,000 A	760
7. 14,000 A — 120,000 A	7,222

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1933, p. 375).

Hixson Laboratories, Inc., Johnstown, Ohio.

Diphtheria Toxin-Antitoxin Mixture, 0.1 L+.—Each cubic centimeter represents 0.1 L+ dose of diphtheria toxin neutralized with the proper amount of diphtheria antitoxin obtained from the horse; preserved with merthiolate 1:10,000. Marketed in packages of three 1 cc. vials, in packages of one 10 cc. vial, and in packages of one 30 cc. vial.

Diphtheria Toxin-Antitoxin Mixture, 0.1 L+ (Sheep).—Each cubic centimeter represents 0.1 L+ dose of diphtheria toxin neutralized with the proper amount of diphtheria antitoxin obtained from sheep; preserved with merthiolate 1: 10,000. Marketed in packages of three 1 cc. vials, in packages of one 10 cc. vial, and in packages of one 30 cc. vial.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1933, p. 384).

Hixson Laboratories, Inc., Johnstown, Ohio.

Diphtheria Toxoid.—Prepared from diphtheria toxin by treatment with 0.4 per cent solution of formaldehyde at a temperature of 40 C. until its toxicity is so reduced that 5 cc. will not cause early or late symptoms of diphtheria poisoning in a guinea-pig under observation for thirty-five days. The product is tested for antigenic potency by injecting guinea-pigs with varying doses and testing the resistance of these guinea-pigs to five minimum lethal doses of diphtheria toxin given six weeks after the dose of toxoid. If 80 per cent of these pigs survive for ten days, the product is considered satisfactory. Merthiolate 1: 10,000 is used as preservative. Marketed in packages of two 1 cc. vials, in packages of twenty 1 cc. vials, in packages of one 10 cc. vial, and in packages of one 30 cc. vial. All packages are accompanied by vials containing diluted toxoid for carrying out reaction tests.

POLLEN ANTIGENS-LEDERLE (See New and Nonofficial Remedies, 1933, p. 31).

The following product has been accepted:

Plantain Pollen Antigen-Lederle.

METRAZOL (See New and Nonofficial Remedies, 1933, p. 301).

The following dosage form has been accepted:

Metrazol Solution 10 per cent: An aqueous solution containing metrazol, 0.1 Gm. per cubic centimeter.

Committee on Foods

REPORTS OF THE COMMITTEE

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

EATMOR CRANBERRIES GENERAL ADVERTISING

Sponsor.—American Cranberry Exchange, New York City.

Description.—Superior grades of fresh cranberries of various varieties bearing the trade mark "Eatmor" on the container label.

Culture, Harvesting, Shipment and Storage.—The cranberries are grown on waste, bog or marsh land. The cranberry vine spreads over the ground. Upright stems (from 4 to 10 inches long) from the vines bear the fruit, which carry from one to seven cranberries each. The vines bloom in June; the fruit is harvested in September.

There are many varieties of cranberries, which vary in size, shape, color and keeping qualities; the predominant varieties are: "Early Blacks," "Howes," "Jerseys," "McFarlins," "Bell"

and "Cherry," "Centennials," "Searls Jumbos" and "Champions." The cranberries of each variety vary in size and color. The sales companies composing the exchange have established carefully defined grades for each variety. A separate brand is applied to each grade of each variety and each brand and grade are carefully described in a small catalogue published by the exchange. The better grades of the various varieties bear the trademark "Eatmor" on the container label. This trademark is the retail dealers' and consumers' guide to the better grades of cranberries.

The cranberries are shipped to all parts of the United States and Canada in boxes and are on sale by September. Cranberries should be stored in a dry atmosphere at a uniform moderately cold temperature.

Analysis.—

	per cent
Moisture	88.5
Solids	11.5
Ash	0.2
Protein (N × 6.25)	0.4
Fat (ether extract)	0.4
Reducing sugars as invert	4.2
Pectin	0.5
Crude fiber	1.6
Total carbohydrates other than crude fiber (by difference)	9.9
Acidity as citric acid	1.9–2.7
Alkalinity of ash (cc. N alkali per 100 grams sample)	2.2–3.0 cc.

Mineral analysis	per cent
Calcium (Ca)	0.013
Magnesium (Mg)	0.005
Potassium (K)	0.053
Sodium (Na)	0.002
Phosphorus (P)	0.008
Chlorine (Cl)	0.004
Sulphur (S)	0.005
Iron (Fe)	0.0002
Copper (Cu)	0.0002
Manganese (Mn)	0.0006
Iodine (I)	25–138 parts per billion

Calories.—0.5 per gram; 14 per ounce.

Vitamins.—

A (+). Approximately 1.2 rat units (Sherman and Burtis) per gram.

B, D and G. Not present in measurable amounts.

C (++). The fresh cranberry is a good source of this vitamin, about 3 to 4 Gm. daily giving full protection from scurvy and promoting normal growth in guinea-pigs (Sherman, La Mar and Campbell). About 80 per cent of the vitamin of fresh fruit is retained in whole fruit cranberry sauce.

Claims of Distributors.—Eatmor Cranberries may be used for the preparation of many appetizing, tart and colorful desserts, cocktails, sauces, pies and pastries. The usual portion of cranberries has little effect on the alkaline reserve of the body.

JUMBO MORNINGSTAR PURITY BREAD MORNINGSTAR LOAF (SLICED)

Manufacturer.—Hagerty Baking Company, Philipsburg, Pa.

Description.—These breads are the same product as Sally Ann Bread (THE JOURNAL, July 30, 1932, p. 390).

FANT'S BIRTHDAY SELF RISING FLOUR
(Matured, Bleached) (Contains Phosphate, Soda and Salt)

FANT'S READY TO BAKE SELF RISING FLOUR
(Matured, Bleached) (Contains Phosphate, Soda and Salt)

Manufacturer.—Fant Milling Company, Sherman, Texas.

Description.—Self rising flours containing blended "hard" and "soft" short patent flours, salt, calcium acid phosphate and baking soda; bleached.

Manufacture.—The ingredients are mixed in definite proportions in a batch mixer and automatically packed in cotton sacks. The flour is bleached with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50,000 parts of flour) and nitrogen trichloride (one-ninth ounce per 196 pounds).

Claims of Manufacturer.—Self rising flours for home baking of biscuits, pastries and cakes.

GENERAL ADVERTISING FOR "OCEAN CLEAR LIVE LOBSTERS"

Distributor.—Consolidated Lobster Company, Gloucester, Mass.

Description.—Live lobsters packed in rockweed and ice in barrels.

Analysis.—

Composition of Fresh Lobster

No. of Analyses Edible portion:	Water, Per Cent	Protein (N × 6.25), Per Cent	Fat, Per Cent	Total Carbohydrates, Per Cent	Ash, Per Cent
Minimum 5....	68.6	11.6	1.5	...	1.6
Maximum 5....	84.3	25.4	2.5	0.9	4.0
Average 5....	79.2	16.4	1.8	0.4	2.2

(Tressler, D. K.: Marine Products of Commerce, Chemical Catalog Company, 1923.)

Iodine (parts per million) 1.38

Lobster is highest in iodine content of any known sea food. (United States Department of Fisheries, Document 1000)

Calories.—(average of edible portion) 0.9 per gram; 26 per ounce.

Claims of Manufacturer.—The live lobsters are kept in sanitary ocean water until time of shipment. A rich source of food iodine.

WARD'S TIP TOP BREAD

Manufacturer.—The Ward Baking Company, New York City.

Description.—A white bread made by the straight dough method (method described in THE JOURNAL, March 12, 1932, p. 880); prepared from flour, water, condensed skim milk, sucrose, shortening, salt and yeast.

Claims of Manufacturer.—Conforms to the United States Department of Agriculture definition and standard for white bread.

PARADISE ISLAND BRAND HAWAIIAN FINEST QUALITY PINEAPPLE
(Sliced)
(Fancy Quality; Vacuum Packed) Dole 1

PARADISE ISLAND BRAND HAWAIIAN FINEST QUALITY PINEAPPLE
(Crushed)
(Fancy Quality) Dole 1

PARADISE ISLAND BRAND HAWAIIAN FINEST QUALITY PINEAPPLE
(Tidbits)
(Fancy Quality; Vacuum Packed) Dole 1

Manufacturer.—Hawaiian Pineapple Company, Ltd., San Francisco.

Description.—"Dole 1" or "grade 1": The appearance and flavor are the best of the three grades packed.

Sliced: Canned slices of pineapple, uniform in size and color, packed in concentrated pineapple juice syrup with added cane sugar (25 per cent sugar).

Crushed: Canned crushed pineapple prepared from the same pineapple material as the sliced but in crushed form; packed in concentrated pineapple juice syrup sweetened with added sucrose (25 per cent sugar).

Tidbits: Canned tidbits prepared from the same fruit as the sliced pineapple but cut into small uniform sections; packed in concentrated pineapple juice syrup sweetened with added sucrose (25 per cent sugar).

Manufacture.—The pineapples are picked at a definite stage of ripeness when the flavor is at its best. The crowns are cut off; the fruit is graded as to size and immediately shipped to the cannery near Honolulu, where it is distributed to special machines ("Ginaca" machines) of which there are three sizes, each cutting the pineapple to a different diameter. The machines automatically "size" the pineapples or cut out cylinders of a definite diameter from the fruit, extract the core and trim off the ends. (A certain amount of choice fruit material adheres to the skin after the cylinder is cut out; this is separated from the skin by the same machine. This material is used for "crushed pineapple." All parts of the pineapple not used in canning are used for the preparation of concentrated pineapple juice, which is neutralized, filtered and concentrated.

The concentrated juice is sweetened with sucrose and is used as a syrup to add to the canned products.)

On leaving the "Ginaca" machines, the pineapple "cylinders" are transferred to canning tables, where uniformed operators wearing rubber gloves inspect the fruit and do whatever trimming is necessary. The trimmed fruit cylinders are washed with a water spray and automatically sliced. The slices are delivered to a packing table, where gloved operators select the slices for the three grades of canned products (doles 1, 2 and 3) and fill the cans. The filled cans of sliced and tidbit pineapples are subjected to a "vacuum" treatment in an automatic machine, following which each can receives a certain quantity of syrup of the sweetened concentrated pineapple juice previously referred to. The use of pineapple juice syrup gives added pineapple flavor to the product. The cans are automatically closed in a "vacuum" closing machine. No solder is used to close the cans. (The crushed pineapple is not "vacuum" packed). The sealed cans are heat processed under steam pressure and immediately cooled thereafter to about 50 C. Processed cans are inspected for any imperfections and crated for shipment.

For making the crushed pineapple, the fruit material adhering to the skins is separated by machine, in which operation the fruit is shredded. The shredded material is spread on a wide belt for inspection and any undesirable parts are removed. Crushed pineapple is also obtained from slices which are irregular in shape and therefore unsuitable for the sliced product. The slices are crushed and shredded by machine. The crushed pineapple is cooked in nickel steam heated kettles equipped with agitators and recording thermometers. The cooked material is automatically canned, sealed and cooled.

Analysis (submitted by manufacturer).—

	per cent
Moisture	83.2
Ash	0.5
Fat (ether extract)	0.1
Protein (N × 6.25)	0.4
Reducing sugar as invert	6.1
Sucrose (copper reduction method)	6.8
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	14.7
Titratable acidity as citric acid	0.8
*p*H	3.9

Calories.—0.6 per gram; 17 per ounce.

Vitamins.—Biologic assay shows the canned pineapple to be a good source of vitamins A, B and C, practically equivalent to the fresh fruit in A and B and but slightly inferior in C.

Claims of Manufacturer.—The special "vacuum" packing retains the natural pineapple flavor. The canned product is practically equivalent to the fresh fruit in nutritional values (vitamin C slightly reduced).

TIP TOP SANDWICH BREAD (SLICED)
BAUR'S AUNT HANNAH'S BREAD
BAUR'S AUNT HANNAH'S SANDWICH BREAD (SLICED)
WARD'S PERFECTION BREAD
WARD'S SOFT BUN BREAD
WARD'S MOTHER HUBBARD BREAD

Manufacturer.—The Ward Baking Company, New York City.

Description.—White bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from flour, water, condensed skim milk, sugar, shortening, salt, yeast and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate.

Claims of Manufacturer.—Conform to the United States Department of Agriculture definition and standard for white bread.

ARBITRATOR PATENT FLOUR (BLEACHED)

Manufacturer.—Saxony Mills, St. Louis.

Description.—An "all purpose" soft winter wheat patent flour; bleached.

Manufacture.—Selected soft red winter wheat is cleaned, tempered, scoured and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with nitrogen trichloride (one-ninth ounce per 196 pounds) and with a mixture of benzoyl peroxide and calcium phosphate (1 part to 50,000 parts of flour).

Claims of Manufacturer.—This flour is designed for general home baking.

NATIONAL LIVE STOCK AND MEAT BOARD TEXTBOOK: TEN LESSONS ON MEAT FOR USE IN SCHOOLS

Sponsor.—The National Live Stock and Meat Board is an organization founded to promote the interest of all branches of the live stock and meat industry. The board devotes a considerable sum of money each year in fostering scientific research. These funds are disbursed through the National Research Council.

The book gives simple educational information on the following subjects and includes six charts showing the relative nutritional values of common foods:

Lesson 1. "Meat, Physical Structure and Chemical Composition."
Lesson 2. "Identification and Selection of Meat."
Lesson 3. "Principles of Meat Cookery . . . Preparation of the Tender Cuts, Roasting."
Lesson 4. "Principles of Meat Cookery . . . Preparation of the Tender Cuts, Broiling and Panbroiling."
Lesson 5. "Principles of Meat Cookery . . . Preparation of the Less-Tender Cuts."
Lesson 6. "Preparation of the Less-Tender Cuts . . . Mechanical Methods."
Lesson 7. "Soup."
Lesson 8. "The Value of Meat as a Food."
Lesson 9. "Feeding the Family for Health."
Lesson 10. "The Art of Carving."

The six charts present diagrammatically relative calory, calcium, iron and copper, phosphorus, protein and vitamin values of certain common foods.

GOLD CHAIN EXTRA FANCY PATENT FLOUR (BLEACHED; MATURED)

Manufacturer.—Universal Mills, Fort Worth, Texas.

Description.—An "all purpose" short patent flour prepared from a blend of hard and soft winter wheats; bleached and "matured."

Manufacture.—Selected hard and soft winter wheats are cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL,

Chosen flour streams are blended, bleached with nitrogen trichloride (3 Gm. per barrel) and a mixture of calcium phosphate and benzoyl peroxide (⅓ ounce per barrel).

Claims of Manufacturer.—For home baking.

FISHER'S CRACKED WHEAT
(Selected Hard Wheat)

Manufacturer.—The Fisher Flouring Mills Company, Seattle.

Description.—Coarsely granular cracked red spring Montana and Washington wheat from which a portion of the endosperm and bran have been removed to give uniform granulation.

Manufacture.—Selected red spring wheat is cleaned, scoured, washed, tempered, cracked between rolls, and passed through a series of purifiers and aspirators to remove light and finely divided material. The material of uniform granulation is heat treated to destroy any insect infestation and packed in bags.

Analysis (submitted by manufacturer).—

	per cent
Moisture	9.4
Ash	1.6
Fat (ether extraction method)	1.6
Protein (N × 5.7)	11.9
Crude fiber	2.5
Carbohydrates other than crude fiber (by difference)	73.0

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—Approaches whole wheat in composition.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 8, 1933

RELAXATION OF RESTRICTIONS ON PRESCRIBING OF LIQUOR

In an editorial, July 17, 1920, THE JOURNAL made the following statement:

> Our profession has always been regarded by the public as an honorable one. Its members are presumed, by the very nature of their calling, to be upright and dependable. . . . It is beside the question as to how many prescriptions for liquor any physician may need to write in a certain length of time. It is obvious—there is no denying the fact—that some physicians are grossly abusing their trust in this matter. . . . For the good name of our profession, it should be made known to the public in an emphatic manner that such disreputable practices, on the part of any physician, are not condoned.

While THE JOURNAL has constantly maintained the right of the physician to prescribe at any time anything which he considers necessary for the health of his patient, it has, at the same time, repeatedly urged physicians to respect the privilege conferred on them by the government in permitting them to prescribe alcoholic liquors even when the law of the land attempted to restrict the use of such beverages from the point of view of social interest.

Now the Celler-Copeland medicinal liquor bill has been passed by the Senate and the House of Representatives and was approved by President Roosevelt, March 31. The bill became effective immediately except for the provisions directing the discontinuance of the use of official prescription blanks. Thus comes to a successful conclusion the long battle waged by the American Medical Association to procure for qualified physicians the right to prescribe whatever they deem necessary and and in any amount that may be shown to be necessary in the best interest of their patients.

In place of the former arbitrary limits on the quantities of alcoholic liquors that a physician might prescribe, on the alcoholic strength of the vinous liquor, and on the number of prescriptions that might be issued, the law now provides that "no more liquor shall be prescribed to any person than is necessary to supply his medicinal needs." Within the limits of sound professional practice, the judgment of the attending physician is supreme. The prohibition on the medicinal use of malt liquor remains in effect. Under the recently enacted law regulating the sale of beer, nothing in the National Prohibition Act now applies to fermented malt and vinous liquors that contain not more than 3.2 per cent of alcohol by weight. Malt and vinous liquors of this type may be prescribed without federal restriction.

While there are now no federal limitations on the quantities of spirituous and vinous liquors that a physician may prescribe, except the limitations imposed by sound professional practice, the manner of prescribing is governed by new regulations. If the diversion of medicinal liquor to beverage purposes is to be prevented, unscrupulous physicians cannot be left at liberty to order in a single prescription all the liquor that any patient might need throughout the entire period of his illness and convalescence. Indeed, a patient might apply to several physicians, concealing from each the fact that he was under treatment by the others, and thus obtain an excessive quantity of liquor. This possibility has been anticipated by the new law. Any person who by misrepresentation obtains a greater quantity of liquor than is necessary for his medicinal needs is liable to fine and imprisonment. The abuses that might arise if physicians should customarily prescribe quantities of liquor sufficient to last through the weeks, months and years of chronic illness are apparent. Therefore the maximum quantity that may normally be prescribed at one time will be fixed, as well as the normal maximum frequency of prescribing. Moreover, special provision may be made for prescribing additional quantities in cases of actual necessity.

The Attorney General and the Secretary of the Treasury are authorized jointly to promulgate regulations to govern the details of prescribing. They are already consulting with representatives of the Association and with others in an effort to formulate fair, reasonable and effective regulations. In order to bridge the gap between the old and the new order, however, they have continued in force the limitations on prescribing that have heretofore been in effect. Notice of the promulgation of the new regulations will appear in THE JOURNAL, and official information will be available at the offices of supervisors of permits throughout the country.

On the discontinuance of the use of official prescription blanks, about January 1, physicians will be supplied free by the government with engraved stamps of a convenient size and design, suitable for affixing to a physician's ordinary prescription blanks. A physician who wishes to prescribe liquor will then be required to write his prescription on his ordinary prescription blank, in such form and detail as may be prescribed by regulations, and then, in order to validate his prescription, to affix and to cancel such a stamp. Until the date determined on for initiating the use of such stamps, physicians are to continue to use the present official forms with which they have been supplied.

While the new law provides that a physician shall not be called on to file in any government office any statement of the nature of the ailments from which his patients are suffering, physicians must continue to keep in their offices the book records now required, stating the nature of such ailments. These office records will assume an increased importance with the discontinuance of the filing of prescription stubs with supervisors of permits. These book records continue to be open to inspection by officers charged with enforcing federal prohibition laws.

The adoption of this new law places on physicians a greater responsibility than has been theirs heretofore. THE JOURNAL has maintained that the honor of the profession warrants the granting of such a responsibility. The physicians of this country must demonstrate that this confidence has not been misplaced. The fact that the prescription of alcoholic liquors is still not permitted in several states, the fact that numerous physicians in states in which prescribing is permitted have refused to take out the necessary license or to avail themselves of the privilege, the fact that many physicians find the possession of this privilege a serious annoyance in their relationships to both patients and friends, are indications that the right to prescribe alcohol has never been an unmixed blessing. We believe that the physicians of this country can so administer the new situation in which they find themselves as to continue to merit the high honor in which both the public and the government have held them.

AIR CONDITIONS AND HEALTH

The final report of the New York Commission on Ventilation,[1] which began its work in 1913, concludes that desirable conditions may be obtained for schools by plenum ventilation, local unit ventilation or window-gravity ventilation but recommends further investigations into the physiologic effects of radiation and convection of heat, of vertical variations in temperature, and of electrical and other properties of the atmosphere. Following this report, the American Institute of Architects [2] passed a resolution for revision or repeal of present codes or regulations until such time as hygienists and engineers may agree. In June, 1932, Yaglou and his co-workers [3] sought to clarify the confusion that has arisen regarding the interpretation of certain standards advocated by them for a number of years; viz., the "effective temperature index" and the use of "comfort charts." Simultaneously the American Society of Heating and Ventilating Engineers [4] adopted a greatly simplified set of standards and definitions. In the meantime certain well known English investigators [5] announced new discoveries in the field of radiant energy and methods for detecting such factors, which have changed prevailing ideas considerably. Finally, at its Washington meeting in October, 1932, the Committee on Research and Standards of the American Public Health Association appointed a broadly representative committee "to establish a suitable set of air standards for places of various types of occupancy."

Possibly this problem is simpler than it has been made to appear, and what is comfortable is ordinarily healthful. Hayhurst [6] studied the relations between air conditions and comfort, health and efficiency both in the home and in the school. In the case of the home, after about five years of preliminary observations to determine methods of procedure, he reported his conclusions for the subsequent ten-year period 1923-1932. These observations were made in Columbus, Ohio, the family consisting of himself, his wife, a maid and five children, the oldest of the children being 9 years of age when the ten-year observations began, while the youngest was born during the second year of the period. The three older children were by a former marriage. Thus a critical health period in child life was covered.

The methods selected for heating and otherwise air conditioning the home were all simple and inexpensive, with stress on insulation, radiation, general plus local heating, and the recirculation of heated air. The members of the family dressed lightly and followed quite closely, but without unnatural effort, a "rational" diet; i. e., one rich in vitamins and minerals. During the period, the children experienced the usual diseases of childhood but invariably without complications or sequelae, while all the members of the family followed the usual pursuits and recreations of life with attendant health risks. Sickness disability experiences were grouped as (1) nondisabling respiratory, (2) disabling respiratory, (3) other nondisabling and (4) other disabling. The yearly average number of both groups of respiratory disorders (combined) ranged from 0.9 for the oldest child to 2.1 for the experimenter himself, with an average for all members of the mixed family of 1.5. Complications and sequelae were also nonexistent for all other (i. e., nonrespiratory) disabilities. The author concludes that the common sense procedures followed, particularly in view of many supporting observations in related fields, were conducive to the better-than-average-health record.

In a study of air conditions in the schoolroom, where crowded assemblage and "absent" supervision commonly obtain, more stress, according to the author, should be placed on insulation, the control of heat, ventilation, recirculation, filtering and warm season

1. New York Commission on Ventilation: School Ventilation—Principles and Practices, Bureau of Publications, Teachers College, Columbia University, 1931, p. 66.
2. American Institute of Architects: Opposition to Ventilation Codes, the Octagon **4**: 13 (March) 1932.
3. Yaglou, C. P., and others: How to Use the Effective Temperature Index and Comfort Charts, Heating, Piping and Air Conditioning **4**: 433 (June) 1932.
4. Driscoll, W. H., and others: Report of Committee on Ventilation Standards, Am. Soc. Heat. & Vent. Engin. Guide **11**: 327, 1933.
5. Vernon, H. M.: Measurement of Radiant Heat in Relation to Human Comfort, J. Indust. Hyg. **14**: 95 (March) 1932. Dufton, A. F.: The Equivalent Temperature of a Room and Its Measurement, Brit. Dept. Sc. & Ind. Research, Bldg. Research, Tech. Paper 13, May, 1932.
6. Hayhurst, E. R.: Air Conditioning with Relation to Comfort, Health and Efficiency, J. Indust. Hyg. **15**: 98 (March) 1933.

adjustments, but humidification, chemical composition, and the exact quantity of fresh air may be ignored. Manual or mechanical control may be equally satisfactory, but the latter should not be present without the former. Mechanical control is necessary for warm weather and sudden warm spells at any time. Any system used should permit the windows to be opened when the weather permits, at least until our knowledge respecting the relations between fresh air and health are more perfectly understood. "The chief complaint in uncomfortable rooms is not ventilation but overheating, to which stuffiness and odors bear a direct relation." Where air is forcibly introduced, as under fan pressure, no special exit vents are necessary, since the "vitiated" air escapes readily through structural apertures.

The logical conclusion, especially from home studies, is that temperatures of from 68 to 70 F. (20 to 21.1 C.), radiant forms of heating, and differences in the temperatures of various rooms for physiologic stimulation effects are desirable for health, but that some other factor, perhaps the state of nutritional resistance and not "bad air," determines respiratory disorders and their complications. Air conditions in the schoolroom may initiate and help to spread colds, but their duration after exposure suggests nutritional inadequacy in the victims.

Current Comment

WOMEN WHO ENAMEL STOVES

The enameling of stoves is a comparatively new industry in which there is a health hazard due to lead used in the enamel. Since many of the workers in stove enameling are women, the Women's Bureau of the Department of Labor made a study of this industry. Some fifty enameling plants were visited and about seven hundred women were interviewed; three fourths of these women were employed in spraying the enamel and in brushing. The sprayers stand in a booth enclosed on three sides and work an air pressure gun. Exhausts were provided in the booths, but apparently they did not work satisfactorily. The face and clothing of the majority of the sprayers were covered with enamel dust. The work of the women who brush off excess enamel from the stoves was extremely dusty. In some plants the tables on which the brushing was done were equipped with exhausts to carry off the dust, but a more general use of such tables was needed. Symptoms of lead poisoning were reported by about one third of the women interviewed. The most frequent reason for absence from work was illness that suggested lead poisoning. One hundred and fifty-seven women had been married at least a year, and 72.6 per cent of them had not had children. Women suffering from lead poisoning are liable to be sterile or to miscarry. Among 164 maternal histories reported, 30 per cent of the women had been pregnant during or subsequent to the time of their employment at stove enameling and about one in seven had had miscarriages. Workers in lead enamel should be protected from exposure to lead as much as possible. Their health should be guarded by the employment of a physician to examine them at regular intervals. They should change into clean clothing on leaving their work. Food should not be taken into the workroom. The dust should be reduced to a minimum. The study by the Women's Bureau showed that effective precautionary measures against lead poisoning were not being taken in the stove enameling industry. Not one plant furnished all the conveniences necessary for adequate washing facilities. Thirteen plants were without soap, individual towels, hot water or nail brushes, and the provisions for serving lunch were insufficient to protect the workers from lead while eating. A few factories provided for physical examinations, but only four examined the workers when they were employed. Some of the workers in stove enameling wore respirators, but they were doubtfully effective except for emergency use. If the stove enameling industry is to be free from these dangers, it will have to improve conditions in its plants that are known to be hazardous to health or else remove the greatest health hazard by using leadless enamel.

PRIESTLEY AND OXYGEN

The scientific world recently celebrated the two hundredth anniversary of the birth of Joseph Priestley, whose name will forever remain associated with the discovery of oxygen. Priestley was one of the pioneers in a new era of chemistry, when the recognition of some of the familiar gaseous elements and compounds came in rapid succession. These included the "fixed air" of Black, now designated carbon dioxide; the "inflammable air" of Cavendish, familiar today as the gas hydrogen; nitrogen, studied by Rutherford; and nitric oxide by Priestley. Then followed Priestley's most important discovery, Aug. 1, 1774, of what he termed, under the spell of the still current theories, "dephlogisticated air." He decomposed by heat the powder obtained by calcining mercury, and collected and examined the gas given off. In a thrilling story he related how candles and glowing coals burned in this gas with extraordinary vigor, and mice lived in it under a bell jar even longer than in air. Reasoning on the basis of the old phlogiston hypothesis, Priestley selected the name "dephlogisticated air" because the remarkable gas was derived from a burnt, i. e., dephlogisticated, metal and yet was colorless and odorless like ordinary air. Soon thereafter the Swedish chemist Scheele independently discovered the same gas and named it "empyreal air." It remained for the brilliant Lavoisier, "father of the science of nutrition," to appreciate the true facts and coin the word "oxygen," now in use. Numerous other chemical discoveries of importance are attributable to Priestley, sufficient, in the words of a recent commentator, to garner several Nobel prizes. This writer has remarked that Priestley was a paradox, consider him any way that you wish. "An ardent clergyman, he became famous as a scientist; spiritual matters were of first importance for him, yet his physical discoveries alone brought him fame and loom large

in the tradition of physics and chemistry. The first to isolate oxygen, he labored all his life in opposition to the French theory of burning as oxidation. His own discovery overthrew his pet scientific notion, the phlogiston theory of combustion." In these days, when the specter of intolerance and prejudice is cropping out anew in parts of the world designated as "civilized," it may be worth recalling that Joseph Priestley fled from his homeland after composing political and religious pamphlets. He journeyed to France and finally to the United States, where he settled in 1794 at Northumberland, Pa., and remained until his death in 1804. His American home has been retained as a shrine to which hundreds of persons make pilgrimages. Sir Michael Foster maintained that Lavoisier really discovered oxygen—that Priestley and Scheele had merely isolated it. Lavoisier helped to demolish the phlogiston theory and demonstrated the true relationships between combustion and the animal respiratory exchange. The death of Lavoisier by the guillotine in 1794 as the victim of misdirected political radicalism is another "foul blot on civilization."

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Tuesday and Thursday from 9:15 to 9:20 a. m., central standard time, over Station WBBM (770 kilocycles, or 389.4 meters). The subjects for the week are as follows:

April 11. Economic Loss Due to Mental Disease.
April 13. Telescopic Spectacles.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 9:45 to 10 o'clock over Station WBBM. The subject for the week is as follows:

April 15. Sickness and Character.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Twenty-Ninth Annual Meeting, held in Chicago, Feb. 13 and 14, 1933

(Continued from page 1043)

DR. MERRITTE W. IRELAND, Washington, D. C., in the Chair

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

RECOGNITION OF SPECIALISTS

The Function of Special Boards of Examiners

DR. SANFORD R. GIFFORD, Chicago: The methods of these special boards are similar and are modeled on those of the American Board for Ophthalmic Examinations, which was founded in 1916. This board has given certificates to 983 candidates, a number almost equal to the number of men limiting their practice to ophthalmology. The Board of Otolaryngology, founded in 1924, has certified 1,989 otolaryngologists. This is even more than the number limiting their work to otolaryngology, 1,392, and includes many who practice ophthalmology as well. The combined group practicing either specialty or both includes 6,397 physicians, of whom 46 per cent have been certified by one of the two boards.

The American Board for Gynecology and Obstetrics, founded in 1930, has certified 401 applicants to date, according to a recent letter from Dr. Titus, the secretary. While this is only 8 per cent of 4,695 men listed as limiting their work to obstetrics or obstetrics and gynecology, it is as much as would be expected in three years. A board for dermatology and syphilology, of which Dr. Arthur Stillians is chairman, will hold its first examination in 1933.

Although these are the only boards already established, committees of the special societies for pediatrics, neuropsychiatry, orthopedic surgery and radiology have been organized with a similar purpose in mind and it is to be hoped that within a few years all of these specialties will have representative boards. All the boards have chosen to make the application for their certificates purely voluntary. On account of the complete independence of state licensing boards with various standards, it has not seemed practical to bring about any legal recognition of the special boards' certificates as requirements for special practice.

In Denmark, a three to six years course of preparation is determined by a committee of the national medical society, and candidates must satisfy a subcommittee in their specialty. In Austria, specialists must be members of the society of specialists, which prescribes a four to five years course of preparation for admission, which is similar to that required in Germany. Fourteen specialties, including surgery and internal medicine, are covered by these regulations. In Canada, at least one province, Alberta, has set up legal minimum standards for specialists, leaving in the hands of the University of Alberta the registration of applicants who have satisfied these.

In this country, attempts to increase the number of applicants to the boards have chiefly taken the direction of making their certificates prerequisite to membership in the special societies. The average layman, who should be vitally interested in knowing whether the specialist he selects is or is not competent, has never heard of the special boards or special societies and, if he sees a board certificate on his doctor's office wall, gives it no more importance than the diploma of a six weeks postgraduate course in one of our schools which traffic chiefly in diplomas. When he hears that a surgeon has just returned from studies in Vienna, which is usually reported in the local papers, he is duly impressed, even if the period of study is only six weeks, while the fact that another surgeon has been examined and passed by an American board, if known at all, fails to affect his opinion materially. It would seem that more publicity could well be given to the special board examinations. Physicians know less than they should about legitimate publicity and are inclined to be afraid of it. But surely there are ethical means by which such examinations with something of what they mean could be made more widely known. Notices in the papers of cities where board examinations are held should not be difficult to arrange. It would certainly not seem too much that certification should be absolutely required of heads of special departments in approved hospitals. It would be better, and I believe is not entirely unpractical, if within two or three years all the regular attending men in such hospitals should be required to do the same. Practically the same effect would be obtained if staff members were required to be members of one of the special national societies which require a board certificate for membership. This would make possible the retention of some older men who were members of such societies before the boards existed and could be made to apply to specialties in which special boards do not yet exist.

The same possibility exists in the case of the staff of medical schools and the hospitals controlled by them.

The Function of the State

DR. WALTER L. BIERRING, Des Moines, Iowa: The training for the specialties is distinctly an educational problem, and the qualification should be determined on a uniform national basis rather than by each separate state. It would seem most unpractical for each state to establish a board of examiners in the specialties. While some of the personnel of various boards may be fully capable, it is doubtful whether they could rise to the heights and conduct such an examination properly. The difficulty of maintaining uniform standards must be equally obvious.

Any plan of national scope that is proposed by this conference must place the responsibility primarily on the educational forces. The test of efficiency and qualifications can be

properly based on a satisfying examination set by national leaders in each particular specialty. At present there are in operation separate boards of examiners in the four specialties of ophthalmology, otolaryngology, obstetrics and gynecology, and dermatology, the membership of each board being selected by the national associations in the specialties concerned. There is every reason to expect that within a short time similar examining boards will be established in the remaining nine or ten recognized forms of specialized practice. It will also be evident that the tendency to duplication and lack of uniformity in examination procedure will increase as each additional board is organized.

Any plan of national qualification should consider and incorporate as far as possible the following three agencies:

1. The national examining boards in the different specialties. Because of the nature of their organization, these boards are specially fitted to judge and determine properly the training and qualifications necessary for recognition as experts in each of the special fields of practice.

2. The National Board of Medical Examiners, because of the facilities it offers in established subsidiary boards of examiners for its part III (clinical) examination in twenty-two medical centers in this country. A similar board is now being established in the Canal Zone. These are fully equipped and prepared to conduct comprehensive practical examinations in the fundamental and clinical medical sciences.

3. The Council on Medical Education and Hospitals of the American Medical Association, which, acting as the representative of the general medical profession, can exercise the function of a coordinating, unifying and to a large extent supervising agency of the procedure of qualifying specialists in this country. Specialism is but an advanced form of medical training, and its national supervision is logically within the province of this council. It can exert the same function with reference to postgraduate instruction that it does to medical schools. It is also best fitted to maintain a registry for the entire country.

Such a procedure will greatly simplify the function of the state in the regulation of specialists. It will obviate the necessity of special legislation and the establishing of state boards of examiners in the specialties.

The applicant desiring to limit his practice to a specialty, after fulfilling the requirements for a general license, will submit to the department of state government concerned with the practice of medicine, the certification of special qualifications in accordance with regulations to be generally adopted. If these are satisfactory, the specialist can be listed as such in a state register maintained for that purpose. A registry of this nature would establish a particular identification for specialists as well as being informative and a distinct protection for the public.

The adoption of a plan as outlined will be an assurance of joint leadership in a national program that will embody the educational ideals and methods of the university and the highest type of specialized practice.

The Function of the Medical School

DR. IRVING S. CUTTER, Chicago: The change from a mediocre to a high standard in undergraduate medical training in America has been of such recent origin that one can understand the rather tardy development of opportunities for graduate training in all fields of medicine. As early as 1910 a few faculties in cooperation with controlled or affiliated hospitals had worked out a tentative plan for the graduate training of certain superior students. Although there were but few opportunities of this character available, there were but few applicants. While an accurate estimate cannot be made because of the varying character of the opportunities offered, it is safe to say that there are now more than 300 fellowships under the control of faculties in American medical schools, designed to train the student thoroughly in the basic sciences and to provide special training in a clinical field. The programs vary from three to five years and in some instances are longer. This figure is exclusive of the fellowships offered by the Mayo Foundation. Despite the apparently generous number of fellowships, recent data would indicate that there are two or three times as many well trained applicants for the intern-laboratory-residency program as there are places available. Probably the general practioner will never cease to look forward to the time when he can devote himself to some special field for which he has peculiar qualifications and inclinations. On the other hand, if present tendencies continue unabated, each specialty will soon reach a saturation point. This may result in the development of a type of general practitioner who will be far better trained than is the graduate of today. It is obvious that with better trained general practitioners the calls on the highly trained specialists will become less frequent. This situation is noticeable even today, largely because of better undergraduate and hospital training of recent graduates.

Since specialism is undoubtedly a natural outgrowth of an earnest desire on the part of the physician to render better and more efficient service, it must not be discouraged in those who feel justified in so preparing themselves. Unfortunately, it is a relatively simple matter for a duly licensed practitioner of medicine to announce himself as qualified in some special field. At the present time the American Medical Directory indicates the special field chosen by each physician, but there is no investigation of the qualifications substantiating the designation. American medicine must establish some agency or agencies that will inform the public as to the qualifications of physicians practicing in special fields.

Special societies have in a sense constituted a group that have generally represented a very high standard of excellence in certain fields of medicine. Of the membership of these groups the public has had little information and such societies have served only in slight degree as a source of information in the layman's selection of a competent specialist. On the other hand, membership in special societies has been a source of much information to the profession itself and has no doubt contributed to the choice of consultants in difficult cases.

From published reports and the innumerable hypercritical articles in the lay press directed toward medical practice, it might appear that there is a lack of understanding on the part of the public regarding the beneficent rôle of medicine. Such information, however, emanating largely from professional sociologists and disoriented economists, does not correctly reflect the attitude of the public. The public has not lost confidence in medicine and at no time have educational factors setting forth the true rôle of medicine been so numerous and efficient as they are today. The reliance of the individual on his personal physician is greater today than ever before. Economic factors that rule in the practice of medicine must be studied by physicians who are able to gather accurate data from the actual field of practice. The analysis must mirror medical practice as it is. Conclusions from such an analysis would probably not point to the introduction into the medical curriculum of courses in department store salesmanship.

Regardless of the chief rôle of the organized medical school, namely, undergraduate instruction, every school, within a reasonable time, will be engaged to some extent in graduate training. It would appear that the development of suitable residencies of from one to three years, preferably in teaching hospitals, would offer the best opportunities for graduate training, and it would seem reasonable that residencies under university administration would typify the best in graduate education and in and of themselves constitute the graduate schools of the future.

The Relation of the Council on Medical Education and Hospitals of the American Medical Association to the Special Practice of Medicine

DR. RAY LYMAN WILBUR, Washington, D. C.: Specialism was an inevitable accompaniment of the advance of modern medicine. On the whole, it has had most wholesome results, both in the care of the sick and in the extension of knowledge.

In the United States it has developed practically free from control. The abuses that were current in the uncontrolled medical education of three or four decades ago are now showing themselves in nearly all the specialties. It was necessary in the control of medical education to obliterate or amalgamate existing teaching institutions, to develop standards for laboratories, hospitals and medical schools, to bring about state legislation controlling the practice of medicine and surgery, and to endeavor to influence through medical societies, social organizations and law the inadequacies of free and untrammeled medical training. In this process of changing and maturing medicine, the American Medical Association, through the Council on Medical Education and Hospitals, has had a dominating influence. This influence has been brought about in spite of

an absence of power of control, through carefully devised programs, frequent inspections and the use of publicity in presenting the facts to the medical and lay public, largely through the publications of the American Medical Association. Other forces have joined in, but the constant and steady influence of the Council has been of fundamental importance.

It has been frequent in recent years for self-anointed specialists to present themselves to the public without adequate training and without passing through a well defined period of preparation. Each man was a law unto himself. Along with this has gone the development of great skill on the part of many individuals in the specialties. Time has shown a sufficient number of difficulties, if not failures, among specialists, to warrant the handling of this question in a way that will not only protect the best interests of the public but also bring about growth in the training and skill of those who select special fields for their medical work. Specialism is here to stay and to grow.

In approaching the question from the standpoint of the American Medical Association, it seems that we should realize that we cannot wisely disturb specialists who are now established in their profession, nor insist on a specific training for them. Whatever we may wish to do in the way of suggestions for training can apply only to new men. It is, though, well within the function of the Council on Medical Education and Hospitals to set up minimum standards of education for all who are in the future to be recognized as specialists and also to require certain standards for those whose names are to be published in any list of the Association. It might be said that this can better be done by certain of the special societies, but it does not seem wise to allow specialism to be controlled by self-controlled organizations often having in their membership certain individuals who make it their function to "freeze out," for personal reasons, men who may be equally qualified. Also, it is not wise to wait until the police power exercised through licensing can function so far as the various state boards of licensure are concerned.

Granted that there is an evolution going on in specialties of medicine and that we are in a transition period offering unusual difficulties of control, it seems nevertheless that now is the time to attack the problem and that, so far as the Council is concerned, it is within the power of the Council, and technically possible, to: (1) provide certain minimum standards of education and training for specialists and to list in the American Medical Association Directory, or in some special directory, those whose achievements equal these standards; (2) provide lists of schools or institutions approved for the training of specialists; (3) list hospitals offering residencies or other positions suitable for the training of specialists; (4) come to a decision as to the way in which those who are already in special fields shall be designated; (5) work out, in conjunction with the Association of American Medical Colleges, the American Hospital Association and the National Board of Examiners and the national societies, constructive plans for dealing with those who plan to enter special fields.

It would be possible also to localize lists of specialists so that they could become available in the different states, cities and counties. While there are no doubt some difficulties associated with this program, the record of the Council indicates that it is in the best position to speak with the voice of the entire medical profession. Its continuity of policy and personnel, its freedom from professional jealousies and political control, permit it to make impartial judgments. It has available unequaled facilities and established machinery for carrying on its work. The biographic files of the Association contain the most complete information anywhere in the country regarding the membership of the medical profession.

The Council is in a position to verify the credentials and the record of special training of candidates. Its inspectors are constantly in the field and in a position to make personal investigations in a community. The staff as organized has already gained much experience through the preparation of the existing lists of physicians specializing in radiology and pathology. Through THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the American Medical Directory it is possible to give these lists a widespread distribution of almost universal availability. The Directory is an accepted source of information here and abroad. It is possible for the Association to provide the funds to carry this out effectively and continuously if the policy is adopted by the House of Delegates.

The Council is already engaged in the preparation of lists of qualified specialists in two of the fields of medicine, so that it is much more economical for it to extend its activities than for some new agency to be created. The Council can coordinate all the existing information and all the available lists of specialists. I feel that there is an opportunity to control the important specialties, which is now equal in importance to the work done in the fields of ordinary medical school direction. The Council can proceed without the action of the legislatures and free from outside interference. Its work can be carried on within the profession and can be united with all other constructive forces. We know that the method is effective for it has worked before. Should it be desired, the Council on Medical Education and Hospitals stands ready to carry on work in this new field to the best of its ability.

DISCUSSION

DR. LOUIS B. WILSON, Rochester, Minn.: Despite the popular publications by inadequately informed economists which have tended to create distrust of the medical profession in the minds of lay readers, there are few laymen who in the event of complicated illness in their own families will attempt unaided to select a specialist. They rightly, for the most part, fall back on the advice of their family physician. The chief exception to this practice is the selection directly by the patient not of one specialist but of a group of specialists, some one or more of whom, he has confidence, will be able to give him adequate professional service. It has happened, however, that the intelligent patient has come to accept the recommendations of his family physician less blindly. When the young family physician attempts to answer the inquiries of his intelligent patient, and much more so when he attempts to give a reason to himself for his selection of a specialist for his patient, he is often in a quandary. We must not forget that approximately 4,000 young men and women begin the practice of medicine each year. Most of these have inadequate data on which to make a selection, yet they are the ones who most need consultants and whom it is to the greatest interest of the public and of the profession that they start right.

The essential qualifications which the family physician seeks in a specialist are (*a*) competence, (*b*) honesty and (*c*) good hospital connections. At present the family physician must determine the specialist's competence by the latter's general local reputation and by such information as is contained in the directory of the American Medical Association. The general opinion held by his associates of an experienced specialist is trustworthy, but, unfortunately, it is often difficult for the young family physician to obtain this general opinion even in a large community. It is much more difficult for the family physician in a small community to obtain reliable opinions concerning a specialist in a distant large community. The information in the directory of the American Medical Association gives the specialist's age, his year and school of graduation, the date and place of his licensure, what specialty he has said he is confining his practice to, and his membership in specialty societies and in the American Medical Association. It gives no record of his hospital training for general practice or his special training for his specialty as a university graduate, as a hospital resident, or as an associate with another specialist. Reliable information concerning the honesty and professional integrity of specialists can usually be obtained from the secretary of the county medical society. Information concerning the specialist's hospital connections can be obtained only through a study of the hospital reports of the several hospitals in the city in which he practices, and these are sometimes unreliable. It is desirable that the referring physician should have immediately available the following information concerning specialists in their own and in distant communities: Age, year and school of graduation, year and state of licensure for general practice, place and character, if special, of hospital internship and residency, place and length of general practice, if any, length and character of training for specialty practice (school, hospital or assistantship), date and character of his official recognition as a specialist, membership in limited specialists' societies, and hospital appointments. I believe with Dr. Wilbur that the American Medical Association is the only organization which can bring such information accurately, economically and authoritatively to the medical profession. The American Medical Association is strategically and finan-

cially better able to collect and publish economically such a combined list of all specialists than could possibly be done by the several specialty boards themselves. There is just one possible modification of that. It is possible that the American College of Surgeons' list might be a parallel registry, and the American Medical Association could omit that. That is open for discussion, however.

Now, except in the case of the specialty group represented by Dr. Gifford and of the groups of otolaryngology and rhinology and of obstetrics and gynecology, the American Medical Association would find it impossible at present to obtain the information which I have mentioned concerning the recognized medical and surgical specialists. The American Medical Association is not an examining body and is not properly organized to become an examining body or a qualifying body. Where shall it turn for such information? From their experience and our confidence in their results, it would seem that the most intelligent procedure would be for each specialty to set up its own qualifying board. It seems to me that there is no question that each specialty can best determine authoritatively what individuals are competent to practice that specialty. I think we will agree that it is better that each should be a national qualifying board rather than a state or a county qualifying board. It remains only for the several national organizations in each of the specialties to get together and set up such a qualifying board. So far as competence is concerned, I believe the philosophy of the New Jersey Society in making the county society the qualifying body for the ethics of the specialists is a very wise move. The lists of qualified specialists approved by such boards, if accepted by the Council on Medical Education and Hospitals, should form the basis for the information as to competence to be published by the American Medical Association and distributed in as economical a manner as possible to the physicians of the United States. It should not be forgotten that just now the general practitioner in the small town has not money enough to buy the necessary journals and monographs that he thinks he should have for his profession. Do not let us saddle him with the purchase of a qualifying list from each of the several specialties. Let us, by all means, have the American Medical Association make a single list, which should be put out to him at the least possible cost.

DR. DEAN LEWIS, Baltimore: I do not think there is any doubt that specialists ought to have some way in which they can be recognized. No one should declare himself a specialist because he is inclined to do so. It also seems to me that the machinery is rather complicated. I agree with Dr. Wilson that many of these boards should not be examining boards; but they should be qualifying boards, because I think if there is anything we want to get away from in this country, it is repeated examinations. There is one thing about a residency that has to be taken into consideration. As far as surgery is concerned, I doubt whether enough medical schools in this country could provide the number of surgeons that might be required. Dr. Cutter spoke of Dr. Halsted's system in Baltimore at Johns Hopkins Hospital, which is really a transplanted German system. I think it has been very profitable. But we can take one resident in the Hopkins system each year, and it is a long system. It is seven years' service. During those seven years a man has a chance to engage in almost all types of surgery, but that is one man in seven years. The man who applies for that residency usually has to have some financial aid or be the son of a rich parent, because it takes seven years with very little money to go through a residency, so that may throw out a boy who might be a great surgeon, because the imponderables make the specialists. I think that any man who comes back after general practice and wishes to go into a specialty ought to be made a member of a staff. That ought to be the resident staff which runs that hospital.

There is another thing: A man goes into a town of 1,500. He is called on to operate for hernia. He may have to do an operation for appendicitis or strangulated hernia, or other emergency surgery. What requirement is to be expected of him? The same requirement cannot be made of that man who does emergency surgery in a small community that is made of a man in a large center, because that would immediately throw out from that community the man who is probably best qualified to do the emergency surgery. There must be different requirements. That is part of the machinery which I think is going to be very difficult to handle. One of the main things about this specialty program is informing the public. I think probably the best means of doing that is through the American Medical Association, through the Directory. The Association has the equipment. It can use special societies. As far as informing the public is concerned, I think this is the best method, through qualifying boards without examining boards. Whether this is ever going to stop the unethical part of practice, I do not know. I never expect to see fee splitting and unethical things in practice rooted out until the highest type of medical profession develops. That is a moral thing. A man ought to know it; if he does not know it I often think he cannot be educated. Sometimes I get a little discouraged about this because a patient picks out a doctor for a lot of different reasons. Whatever qualifications the doctor may have, if he likes the doctor he is going to employ him.

DR. J. STEWART RODMAN, Philadelphia: I take it that most of this audience is conversant with the National Board's point of view so far as the qualifications of specialists are concerned. Dr. Wilson sounded the keynote, I think, of the National Board's position in this matter. The National Board all these years has been concerned primarily in undergraduate education. When it was suggested to the National Board a few years ago that because of its existing examining machinery it might be of use in qualifying specialists, the National Board thought perhaps it saw a duty and would be glad to do it if it was the wish of the specialists. The National Board feels that the ones to qualify specialists are the specialists themselves. I think that word "qualifying" is much better than "examining." So for once perhaps the National Board can get from under this onus of examining and have no idea whatever of trying to do anything else but leave it with the specialty boards, where it belongs. Perhaps the National Board can be of some use in electing to its membership, as Dr. Wilson has already said will be done, if the specialists desire, a representative from each of the specialties. We want to get away from standardization. We do not care how high they go or how excellently qualified they become in the specialty, but we are very much concerned with what the minimum is. We hope before this meeting is over to arrange a date just prior to the meeting of the American Medical Association when representatives of the National Board and representatives of the special boards and of the specialties who are interested in establishing special qualifying boards can be called together. Through the interest that has already been expressed in perhaps some sort of national cooperation of this kind, it is hoped that some national achievement will come of this, and that one in the future, as he comes to be known as a specialist, may bear some sort of a national stamp.

DR. WILLIAM A. PEARSON, Philadelphia: Medical specialism was well organized in the reign of the Egyptian king Menes, who was supposed to have had a rather extensive knowledge of the action of drugs. It is recorded that the human body was divided into squares, and that each medical specialist was permitted to concern himself only with the organs within a certain square. Specialization has been extended even to the present day, in my opinion at least, further than is necessary, because it is well established in the reports that have come into the hands of all of us that 90 per cent of all the patients who enter the offices of physicians can be effectively treated by the modern, well prepared general practitioner of medicine. I am willing to admit that the specialist deserves more frequent opportunity to advise the general practitioner, and his services should be called on. However, the specialist has developed, perhaps, to an extent not warranted by the demands, legitimate demands. I am confident that we must take into consideration the comparatively limited field for legitimate specialization.

DR. WALTER L. BIERRING, Des Moines, Iowa: I wish to present the following motion:

Resolved, That it is the sense of this congress that the Council on Medical Education and Hospitals of the American Medical Association be asked to carry forward its plan in developing control of the specialties.

DR. LOUIS B. WILSON, Rochester, Minn.: May I offer an amendment to that motion, that the Council be asked to carry

forward its plan, first, by calling a conference of representatives of the groups concerned.

DR. AUSTIN A. HAYDEN, Chicago: I second the amendment.

DR. CHARLES E. HUMISTON, Chicago: It would seem to me that the details of the method of procedure are rather premature. The Council would hardly be competent to deal with it if it were to close its eyes to every avenue of information. I have no reason to think that the Council would not do that. But to name all the interested parties and try to get them all together and get them all to agree would be an uphill grade.

The chairman put the motion and it was carried.

DR. SANFORD R. GIFFORD, Chicago: I did not say as much about the boards, perhaps, as I should have said because I thought that most of you had heard Dr. Wilder's paper last year explaining what the American Board for Ophthalmic Examinations is. This board and the other boards, though, are qualifying boards as well as examining boards. It would be desirable that these boards be recognized in some way legally, but the complications of the different state boards make it improbable that that will be effected soon. These other means have seemed to help a little bit and perhaps are all that can be expected in the near future.

DR. WILLIAM P. WHERRY, Omaha: The symposium this afternoon takes me back seven years to the time when the otolaryngologic board was first contemplated. At that time we constructed several hypothetical premises from which we intended to function. Experience, however, has quite completely changed our concepts. We now realize full well that we are not entirely a qualifying board, that we are not an examining board, but we are a board to determine "Is this candidate before us a safe man?" We keep in mind the ultimate object, the patient. "Is he a safe man?" To me that is the keynote of the special board's interpretation of the candidate. That the special boards will enter into graduate instruction, there is no question. It has been appalling to the otolaryngologic board to realize the carelessness with which graduate instruction is carried on. There has been very little supervision. We have realized that in the final analysis a school will be rated by its output, by the graduates. Not only that, we believe that a school will be rated not by the seeming preparation that it gives to this candidate but by the theme, the incentive implanted in his mind during that formative period. We have examined close to 2,000 candidates. We run a careful credential checkup on them. We evaluate their preparation into A, B, C and D grades. We expect the man who has been out some five, six, seven, eight or ten years with an A grade preparation to carry through with that preparation and pass his examination in an A fashion It is interesting to see the incentive implanted in this individual's mind. We intend to publish soon an analysis of the records to show that it is not always the fellow with the preparation, it is the fellow who applies himself after that preparation that creates a safe man. I sometimes wonder whether we do not come back to the fundamentals of the undergraduate. It is the theme that is implanted in them. I, representing the Otolaryngological Board, am heartily in sympathy with Dr. Wilson. He has met with us. I should like to see a liaison, a coordinating body, under the auspices of the National Board of Medical Examiners through whom would come the determination and the follow up of policies in which all the boards are concerned, yet leaving the special board autonomic in its own control, because I do not believe that a surgeon can tell an otolaryngologist his delineations any more than an otolaryngologist can outline a surgeon's delineations.

DR. AUSTIN A. HAYDEN, Chicago: I should like to address my remarks to what was said by Dr. Pearson to the effect that 90 per cent of all illnesses can be taken care of adequately by the general practitioner. That is an observation that has been heard many times, and it is a statistical observation rather than a real one. Hospital statistics readily substantiate that statement, but as one looks at the actual patient, the man who comes in with a high tension in his eye or an abdominal pain, or as one looks over the statistics of those cases, it is quite simple to figure out that only 10 per cent needed really expert service; but as one looks at the disease itself, it is hard to say which falls into the 10 per cent and which into the 90 per cent. I have heard this remark made many times by leaders in medical education, and still I invariably have found that these men, when they have an earache, consult the best otologist they can find. The question of designation of specialists came up before the Chicago Medical Society within the last month. The radiologists asked the council of the society to make a ruling on whether or not the printing of their names in the advertising book of the Chicago Telephone Company, under a specially designated group, known as radiologists with the title of doctor of medicine, would or would not be considered unethical. The society decided that the printing of such a column in the Red Book of the Telephone Company of Chicago would not be considered unethical. These men said that not many of their people came to them through referring physicians and they felt that the general public was entitled to know who were the qualified men in Chicago who were operating x-ray laboratories. That was the answer of our local society, and I believe that it was the correct answer. It has been admitted that a seven-year residency does not necessarily make the ideal practicing physician. I have seen any number of instances that prove that point. May I submit this idea, that in addition to whatever procedures these special boards undertake, they be governed by the conduct of the man in practice as judged by his fellow practitioners. That is a most important thing. I wish to endorse the work of these special qualifying or examining boards.

DR. C. B. WRIGHT, Minneapolis: As a member of the House of Delegates, I am just going to voice a word of warning so no one will be disappointed if this should not pass the House of Delegates. There is no one in the profession throughout this country who is more interested in getting good specialism and stopping bad specialism than is the general practitioner. Let us look at this from a practical point of view. In our state we have a state internists' society which, in my opinion, is a much better judge of the qualifications of men to practice internal medicine in the state of Minnesota than the American College of Physicians. There are, however, a good many men who are competent to practice internal medicine who are not members of it. In the American College of Physicians, on the other hand, many of them are competent men, but they have taken in many who are not particularly competent nor are they limiting themselves in any way to the field of internal medicine. Now you turn it over to these groups and say to the profession "We are going to tell you who is qualified to practice a specialty." I think one of the first things that is going to come up in the House of Delegates is this: Are we going to authenticate and give publicity to these men as specialists who do not belong to our organization? Can we compel them to belong to our organization, and can we compel them to keep their membership after they have obtained their diploma to practice the specialty which they wish to practice? We all should like to see something done, but specialism is a new thing in this country. I respect the American College of Surgeons, but has it decreased the number of incompetent men who are practicing surgery? Has it decreased the number of surgeons? I think there are too many. These are a few little practical points that I think must be thoroughly ironed out before the House of Delegates would endorse the American Medical Association's taking up this matter and permitting special societies to be registered in our medical directory.

DR. IRVING S. CUTTER, Chicago: In the course of getting the data relative to the number of available residencies in this country, I found that there are between 700 and 800 graduates in recent years who are still pursuing a course designed to fit them for a special field as assistants to some competent man, so we are still producing the largest number of specialists by the assistantship or apprenticeship plan. I imagine that the total of the Mayo fellowships together with those residencies that are now available would not exceed 400, and some 700 or 800 recent graduates are now taking a three to five year apprenticeship, assistantship, to some competent internist or surgeon or otolaryngologist or what-not.

DR. RAY LYMAN WILBUR, Washington, D. C.: I should like to say that the Council already publishes lists of these specialists, and we publish them whether they are members of the Association or not. The data are sent in by the members, and we record that they belong to special societies; if they state they are specialists, we so indicate, whether they are members

of the Association or not. So while we publish our registry now on a certain basis, we have the responsibility, really, of presenting these lists but we have not carried out the functions of investigation and organization that should be carried out if those lists are to be fully defended. It is largely a matter of doing a good job instead of the one that is being done now. I think, too, that it can be done without any great amount of expense and be done readily in cooperation with all the organizations involved. I have a very definite opinion that no self-selected, self-appointed society that chooses its members on some basis that it sets up can be allowed in America to determine who shall be a specialist and who shall not. The minute we get into the hands of special societies and they tell us what to do in the medical profession, we have lost the opportunity to grow in American medicine.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Discussion of Communicable Diseases.—Control of communicable diseases was the theme of a two-day institute, March 17-18, in San Francisco, at which Dr. William H. Park, director of laboratories, New York City Health Department, was the principal speaker. Dr. Park and others discussed the same subject at a public meeting, March 16. The institute was open to all public health workers in northern California. Four sections were organized, to discuss administrative control of communicable diseases; laboratory control; public health information, and control through food, water and milk. Dr. Park will conduct a similar institute under the auspices of the Southern California Public Health Association in Los Angeles.

Personal.—Dr. Harry V. Brown, Glendale, has been appointed a member of the state board of medical examiners, succeeding the late Dr. Burt S. Stevens, and Dr. George H. Kress, Los Angeles, a member of the state board of health, to succeed Dr. George E. Ebright, San Francisco.——Dr. Charles Weiss, formerly associate professor of applied bacteriology and immunology in ophthalmology, Washington University School of Medicine, St. Louis, has been appointed director of the clinical and research laboratories of Mount Zion Hospital, San Francisco, and associate professor of research medicine in the Hooper Foundation of the University of California.——Dr. Charles R. Illick has been appointed city health officer of Santa Paula, succeeding the late Dr. John Crawford, and Dr. Dragutin D. Todorovic of Dorris, succeeding Dr. Peter Paul Baron.——Dr. Ernest R. Jackson has been appointed city health officer of El Cerrito, succeeding Dr. Frank L. Horne.——Dr. William H. Olds has been appointed professor of clinical surgery at the College of Medical Evangelists, Los Angeles.

COLORADO

Bill Passed.—H. 189 has passed the house, proposing to create a board of chiropractic examiners and to regulate the practice of chiropractic.

Bill Enacted.—H. 258 has become a law, amending the pharmacy practice act, by permitting licensed drug dealers, not registered pharmacists, whose places of business are not less than five miles from a licensed pharmacist, to sell certain drugs, medicines and poisons in original packages, prepared by or under the supervision of registered pharmacists.

FLORIDA

Graduate Course.—A graduate course in medicine will be conducted, June 19-24, by the general extension division of the University of Florida, under the auspices of the Florida State Medical Association, newspapers report. Six lectures each on surgery, obstetrics, pediatrics and medicine, and two each on eye, ear, nose and throat, dermatology, laboratory work and roentgen ray are planned. Sessions will be held in the University of Florida Infirmary, it was said. According to the announcement, those invited to participate in the course include Drs. William Wayne Babcock, professor of surgery and clinical surgery, Temple University School of Medicine, Philadelphia; John A. Kolmer, professor of medicine at Temple; Chevalier Jackson, professor of bronchoscopy and esophagoscopy at Temple, and John M. Wheeler, director, Institute of Ophthalmology, Presbyterian Hospital, New York.

GEORGIA

Bill Enacted.—H. 141 has become a law, creating a state board of chiropody examiners and regulating the practice of chiropody. Chiropody (podiatry) is defined as "the diagnosis, medical, surgical, mechanical, manipulative and electrical treatment limited to the ailments of the human foot." Licentiates are prohibited from performing any amputation or using any anesthetic other than local.

ILLINOIS

Bill Introduced.—H. 573 proposes to repeal the law regulating the possession, sale and distribution of narcotic drugs and to enact the uniform narcotic drug act.

Society News.—Dr. Harold Swanberg, Quincy, addressed the Whiteside County Medical Society at Sterling, April 3, on "Radium Therapy in Treatment of Uterine Hemorrhage."——Dr. Drew W. Luten, St. Louis, spoke on "Digitalis Therapy, Old and New," before the Adams County Medical Society in Quincy, March 13.——Dr. Don C. Sutton, Chicago, addressed the Aurora Medical Society, March 2, on treatment of pneumonia.——Dr. James H. Hutton, Chicago, addressed the Macon County Medical Society, March 28, on "Progress in Endocrinology in Its Relation to General Medicine."——Dr. Temple S. Fay, Philadelphia, addressed a meeting in Paris, March 15, on "The Dehydration Treatment of Epileptics."——The Greene County Medical Society, at a meeting in Carrollton, March 10, heard Dr. Warner H. Newcomb, Jacksonville, read a paper on pulmonary tuberculosis.——The Alexander County Medical Society was addressed, March 24, by Dr. Edward Lyman Cornell, Chicago. He also showed a motion picture film on "Physiology and Conduct of Normal Labor."——Speakers before the Fulton County Medical Society at Canton, March 22, were Drs. Roswell T. Pettit, Ottawa; Edwin G. C. Williams, Danville, and Henry W. Grote, Bloomington, who discussed the relation of radiology to general medicine.——Dr. Samuel M. Feinberg, Chicago, discussed food allergy before the Vermilion County Medical Society at Danville, April 4.

Chicago

Personal.—Dr. William Allen Pusey was guest of honor at a dinner, March 2, given by the University of Illinois. Speakers included Drs. James B. Herrick, Charles M. Davison and Morris Fishbein, and Howard Fox, New York; Mr. Rufus C. Dawes, Chicago, and Harry Woodburn Chase, LL.D., Urbana.——Dr. Edward N. Anderson has been appointed head football coach at Holy Cross College, Worcester, Mass.

Endocrine Club Organized.—At an informal dinner meeting, February 22, the Endocrine Club was organized to further the experimental and clinical study of endocrinology. Physicians who attended the organization meeting included Drs. Peter Bassoe, Laurence H. Mayers, Andrew C. Ivy, Arno B. Luckhardt, Frederic T. Jung, Carroll C. L. Birch, Margarete M. H. Kunde, Hugo R. Rony, James H. Hutton, and Broda O. Barnes, Ph.D. The following program was presented at the first meeting of the club, March 17, at the University of Chicago:

Warren Nelson, Ph.D., Lactation.
Thomas F. Gallagher, Ph.D., Male Sex Hormone.
James F. Regan, A.B., and Broda O. Barnes, Ph.D., Absence of Diabetes in a Dog Whose Hypophysis and Pancreas Had Been Removed.
John J. Westra, S.B., Effect of High Dosages of Iodine on Rabbits.
Dr. Barnes, Studies on the Thyroids, Parathyroid and Pituitary.

IOWA

Dr. Bierring Appointed State Health Officer.—Dr. Walter L. Bierring, Des Moines, has been appointed state health commissioner, effective July 1. Dr. Bierring graduated from the State University of Iowa College of Medicine in 1892, taking graduate work at the University of Vienna, Austria; University of Heidelberg and the Ecole de médicine, Pasteur Institute, Paris. He was professor of pathology and bacteriology at his alma mater from 1893 to 1903, and professor of the theory and practice of medicine, 1903-1910. From 1910 to 1914 he held a professorship in the theory and practice of medicine at Drake University, Des Moines. Dr. Bierring served as president of the state board of health and of the state board of medical examiners from 1914 to 1922.

KANSAS

Bills Enacted. — The following bills have become laws: S. 146, amending the nursing practice act, by (1) requiring all registered nurses to register annually and to pay an annual fee of $1, and (2) defining an accredited training school for nurses as one requiring its students to be high school graduates and whose training includes at least 450 hours of theoretical instruction; and H. 472, prohibiting the sale or distribution of medicines, drugs or poisons by means of vending machines or other mechanical devices.

Society News.—The Ford County Medical Society dedicated a recent meeting to Dr. Walter F. Pine, who has retired as secretary after fifteen years' service. A traveling bag was presented to Dr. Pine, who was succeeded by Dr. Clifford L. Hooper, Dodge City. Dr. Frank C. Neff, Kansas City, talked on chest conditions in children.——At a meeting of the Clay County Medical Society in Clay Center, January 11, Dr. Lawrence P. Engel, Kansas City, Mo., spoke on surgical treatment of goiter.——Dr. William C. Menninger, Topeka, addressed the Franklin County Medical Society recently on mental health.—— The Shawnee County Medical Society was addressed, January 2, by Dr. Henry M. Benning, Topeka, on "Clinical Significance of Acidosis and of Alkalosis."——As guest speaker, Dr. Opie W. Swope, Wichita, addressed the Sumner County Medical Society, January 19, on "Light Through the Various Spectra, with Special Reference to the Combined Application of X-Rays and Radium to Cervical Carcinoma."——Dr. Henry Schmitz, Chicago, addressed the Sedgwick County Medical Society, Wichita, March 20, on cervical carcinoma.——At a meeting of the Wyandotte County Medical Society, Kansas City, April 4, Drs. John B. Nanninga and Maurice A. Walker spoke on "Reactions Following Treatment for Syphilis" and "Value of Simple Laboratory Procedure in Management of Surgical Patients," respectively.

MAINE

Plans for Cancer Control.—The establishment of permanent clinics in the three largest hospitals of the state, in Portland, Lewiston and Bangor, with extension to other hospitals as soon as feasible and an effort to stimulate the use of better records and more thorough follow-up work in all hospitals, form part of a plan for cancer control in Maine. Each year, at the annual meeting of the Maine Medical Association, a paper on cancer will be made a special feature, while one evening session will be devoted to motion pictures dealing with cancer and an exhibit by the American Society for the Control of Cancer. Clarence C. Little, LL.D., Bar Harbor, managing director of the cancer society, will speak at this year's session in June. A definite cancer program will be instituted by every county medical society, and an effort will be made to interest dentists and health officers in the work. It is planned to give lectures on cancer at training schools for nurses. The beginning of a "cured cancer" campaign is also anticipated. At the recent organization meeting Dr. Julius Gottlieb, Lewiston, was elected chairman of the Maine State Cancer Committee.

MARYLAND

University News.—"Progress in Autopharmacology" will be the general title of the Dohme Lectures to be given at Johns Hopkins University School of Medicine by Sir Henry H. Dale, director of the National Institute of Medical Research, London, England, April 20-22.

Bill Introduced.—H. 605 proposes to make it a misdemeanor for any person to obtain or attempt to obtain any narcotic drug or to procure or attempt to procure the administration of any narcotic drug, by fraud, deceit, misrepresentation, subterfuge or the forgery or alteration of a prescription.

Dinner to Dr. Kelly. — Three hundred and seventy-five friends of Dr. Howard A. Kelly, Baltimore, gathered at a dinner, February 20, in celebration of his seventy-fifth birthday. Dr. Thomas S. Cullen, Baltimore, was toastmaster, and speakers included Dr. Walter W. Chipman, emeritus professor of obstetrics and gynecology, McGill University Faculty of Medicine, Montreal, and Dr. Abraham Flexner, director of the Institute for Advanced Study, Princeton, N. J. A special tribute was sent to Dr. Kelly by Dr. William H. Welch, emeritus professor of the history of medicine at Johns Hopkins University School of Medicine, who, since February 1, has been a patient in the Brady Clinic, Johns Hopkins Hospital. Dr. Kelly, who is known as the "father of gynecology," is professor emeritus of gynecology at Johns Hopkins, with which he has been associated since 1889, retiring from active work at the school in 1919.

MASSACHUSETTS

Bills Introduced.—S. 352, to amend the medical practice act, proposes that during the current year persons applying for licenses to practice medicine may be licensed if they are graduates of medical colleges offering a full four years course of instruction of not less than thirty-five weeks in each year, whether or not inclusive of periods covered by holidays and vacations. The medical practice act now requires applicants to be graduates of medical colleges offering "a full four years course of instruction of not less than thirty-six weeks in each year." S. 353 proposes to amend the provision of the medical practice act requiring applicants for licenses to be graduates of medical colleges which give a full four years course of instruction of not less than thirty-six weeks in each year so as to permit the licensing of applicants who are graduates of medical colleges which give a full four years course of instruction of not less than thirty-two weeks in each year.

A Society of Fellows.—Twenty-four young men will be gathered this year at Harvard University, Boston, to form a society designed to provide opportunity for independent creative work by a limited number of graduates of Harvard and other colleges. The "fellows" will be appointed for three year terms and will receive from the university a stipend of from $1,250 to $1,500 each, maintenance, and free use of the facilities of the university. Members who give strong indications of production of a fundamental nature may be reappointed for a second term of three years and in exceptional cases thereafter. According to the New York *Times*, the junior fellows will devote their whole time to productive scholarship, free from academic regulations for degrees; they will receive no credit for courses and will not be candidates for degrees. The fact that the first appointment of junior fellows must be made before they are 25 years of age will probably limit the number engaged in medical research in this society.

MICHIGAN

Bill Introduced.—H. 389 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic. Chiropractic is defined as "The science of locating and removing any interference with the transmission of nerve energy without the use of drugs or surgery." Licentiates are to be permitted to make and sign birth and death certificates.

"Seniors" Observe Birthday.—Edgar A. Guest was the guest at the first birthday party, recently, of the Quarter Century Club, composed of members of the Wayne County Medical Society in practice more than twenty-five years. More than sixty-five "seniors" were in attendance. One room in the home of the medical society, which was acquired last year, is known as the "Seniors' Room."

Banquet for Dr. Neafie. — The Oakland County Public Health Association and the Oakland County Medical Society gave a dinner, February 15, in honor of Dr. Charles A. Neafie, who has gone to Maine to assume a position as associate director of public health of the state. Henry F. Vaughan, Dr.P.H., health commissioner of Detroit, gave an address on "Medical Participation in Public Health Activities." Guests included Drs. J. Milton Robb, Detroit, president of the Michigan State Medical Society, and Frederick C. Warnshuis, Grand Rapids, secretary of the state society. Dr. Neafie was health officer of Pontiac for seventeen years; he was presented with a leather traveling bag.

Society News. — Dr. Elwood A. Sharp addressed the Detroit Obstetrical and Gynecological Society, March 6, on "Diagnostic and Therapeutic Aspects of the Anemias."—— Dr. Robert C. Moehlig, Detroit, addressed the Oakland County Medical Society, March 16, on endocrinology.——Joint sessions with local organizations have marked the recent meetings of the Wayne County Medical Society, Detroit. Dr. Clarence M. Hincks, Toronto and New York, spoke before the society and the Detroit Society of Neurology and Psychiatry, February 28, on "Relationship of Psychiatry to General Medical Practice." February 21, when the Detroit Pediatric Society was present, Dr. Henry F. Helmholz, Rochester, Minn., discussed "Pathology and Treatment of Urinary Infections of Childhood." The Detroit Bar Association, March 14, heard Humphreys J. Springstun, LL.B., speak on "Introduction of Hospital Records in Evidence," and Frederick T. Harward, LL.B., "What Is Expected of an Expert Witness?" Dr. Harry W. Plaggemeyer discussed the "Minority Report of the Committee on the Costs of Medical Care and the Future Outlook of the Private Physician." Dr. William F. Braasch, Rochester, Minn., addressed the medical society, Detroit, March 21, on ureteral transplantation to the sigmoid colon for exstrophy of bladder.

MINNESOTA

Personal.—Dr. Fredolph H. Magney, Duluth, has been appointed a member of the Minnesota Board of Medical Examiners.——Dr. William J. Mayo, Rochester, was elected an associate member of the French Academy of Medicine, March 29, the Chicago *Tribune* reported.

Board of Health Elects.—Dr. Nels G. Mortensen, St. Paul, was elected president of the Minnesota State Board of Health at the recent annual meeting and Prof. Frederic H. Bass, University of Minnesota, vice president. Dr. Albert J. Chesley was reelected secretary. Dr. Erling S. Platou, Minneapolis, has been appointed a member of the board, succeeding Dr. William H. Barr, Wells.

NEVADA

Bill Enacted.—A. 98 has become a law, creating a state board of examiners for the examination and certification of graduate nurses and regulating the professional nursing of the sick. Apparently, persons not licentiates of the board may treat the sick for hire so long as they do not represent themselves as being registered nurses.

NEW JERSEY

Lectures for Passaic County Physicians.—A series of Friday afternoon lectures for practitioners is being given under the auspices of the Passaic County Medical Society. Speakers for April, all of New York, are:

Dr. Edwin T. Hauser, Treatment of Diabetes.
Dr. Lewis A. Conner, Diagnosis and Treatment of Certain Heart Disorders of Middle Life.
Dr. Reuben Ottenberg, Recent Advances in the Diagnosis and Treatment of the Anemias.
Dr. Aaron S. Blumgarten, Endocrinology.

Personal.—Dr. James Hankinson Rosecrans, Hoboken, was guest of honor at a reception at his home, March 14, marking the fiftieth anniversary of his graduation from Bellevue Hospital Medical College, New York. Dr. Abraham E. Jaffin, Jersey City, presented Dr. Rosecrans with a set of resolutions in honor of the anniversary.——The staff of Monmouth Memorial Hospital, Long Branch, gave a testimonial dinner, January 28, to Dr. Harry B. Slocum in honor of his completion of ten years' service as chief of staff of the hospital. Dr. Daniel F. Featherston, Jr., Asbury Park, presided and speakers were Drs. William K. Campbell, John E. Maher and Frank J. Altschul, Long Beach, and William G. Herrman, Asbury Park, and Mr. O. N. Auer, superintendent of the hospital.

NEW MEXICO

Health Officers Appointed.—County health officers have recently been appointed as follows: Drs. Eugene P. Simms, Alamogordo, Otero County; James H. Wiggins, Estancia, Torrance County; George T. Colvard, Deming, Luna County; Guy L. Herman, Socorro, Socorro County.

NEW YORK

Requirements for Foreign Medical Graduates.—The New York State Education Department has announced regulations to govern admission of graduates of foreign medical schools to licensing examinations in New York, in harmony with the recommendations recently adopted by the Federation of Medical Boards of the United States (THE JOURNAL, March 4, p. 666). Any student who proposes to study medicine in European schools must complete the premedical courses prescribed by the department, must complete a full four year course and an internship, and must pass the examinations for license to practice in the country in which his school is located.

Bills Introduced.—S. 1708 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic. Chiropractic is defined as "diagnosing and the treating by the palpating and adjusting by hand of the vertebral column and tissues. This shall not include the use of operative surgery or obstetrics or the administering or prescribing of drugs or medicine included in the pharmacopia [sic] or materia medica." H. 2265, to amend the law regulating the practice of podiatry, proposes (1) to prohibit the practice of podiatry by corporations or voluntary associations and (2) to provide that the term "podiatry" shall include "the taking or making of imprints or impressions of the human foot or feet for any purpose whatsoever, conducting foot demonstrations, conducting and maintaining foot clinics or hospitals, the examination and treatment of the human foot or feet and the offering of advice regarding the same."

New York City

Testimonial Dinner to Dr. Park.—The friends of Dr. William Hallock Park, director of laboratories of the New York City Department of Health, will give a dinner in his honor at the Hotel Biltmore, April 19, marking his completion of forty years of public health service.

Society News.—Dr. Frederic E. Elliott, among others, addressed the Medical Society of the County of Kings, March 21, on "Financing Sickness."——Dr. Charles Mazer, Philadelphia, addressed the South Brooklyn Medical Society, March 16, on "Present Status of Organotherapy in Functional Menstrual Disorders and Sterility."——Drs. David Marine and Samuel H. Rosen presented a paper on "Production of Goiter and Exophthalmos by Cyanide," and Drs. Jacob Taub and Edward R. Cunniffe, on "Clinical-Pathological Correlation of One Hundred Cases of Thyroids" before the Bronx Pathological Society, March 28.——Dr. Murray L. Brandt, among others, addressed the Bronx Gynecological and Obstetrical Society, March 27, on "Mechanism and Management of the Third Stage of Labor."——The New York Institute of Clinical Oral Pathology was recently organized with an advisory board composed of Drs. James Ewing, George H. Semken, Abraham Flexner and Harlow Brooks. Membership is limited to 100. The institute maintains a pathologic laboratory and a registry of cases.——Dr. Robert H. Kennedy addressed the New York Surgical Society, March 8, on "Epithelioma of the Lip."——Drs. Haven Emerson and Frederic Elliott discussed the report of the Committee on the Costs of Medical Care at a meeting of the Women's Medical Association of New York City, March 8.——Dr. Harry C. Solomon, Boston, among others, addressed a joint meeting of the New York Neurological Society and the section of neurology and psychiatry of the New York Academy of Medicine, March 7, on "Treatment of General Paresis with a Combination of Fever and Tryparsamide."

NORTH CAROLINA

Bill Introduced.—H. 502 proposes to accord hospitals treating persons injured through the negligence of other persons liens on all claims which such injured persons may have against the persons or corporations whose negligence caused their injuries.

Society News.—Dr. Julian A. Moore, Asheville, addressed the Buncombe County Medical Society, Asheville, February 6, on pneumolysis.——Dr. James K. Hall, Richmond, Va., addressed the Raleigh Academy of Medicine at its annual dinner, February 9, on "Individuality and Environment."——Dr. Archibald A. Barron, Charlotte, presented a paper on "The Need of Careful Diagnostic Study and Better Understanding of the Mental and Nervous Patient" at a meeting of the Mecklenburg County Medical Society, Charlotte, February 21.——Dr. Henry H. Menzies, Hickory, was elected president of the Catawba Valley Medical Society at a recent meeting in Morganton.

OKLAHOMA

Bill Introduced.—H. 652 proposes that every hospital which maintains a charitable department or ward, in lieu of ad valorem taxes and in addition to the tax required under the general income tax laws of the state, shall pay 1 per cent of the net income derived from its operation.

Society News.—The quarterly meeting of the Southern Oklahoma Medical Association was held in Ada, March 7. Among the speakers were Drs. John L. Goforth, Dallas, Texas, on "Value of Biopsy in Diagnosis, Treatment and Prognosis of Cancer"; Basil A. Hayes, Oklahoma City, "Nonspecific Diseases of the Genito-Urinary Tract," and Abraham L. Blesh, Oklahoma City, "Surgical Problems in Treatment of Toxic Goiter."

PENNSYLVANIA

Society News.—The program of the Pittsburgh Academy of Medicine, March 14, included addresses by Drs. John M. Johnston, on "The Brain Stem in Pneumonia" and Harry R. Decker, "Surgical Treatment of Pulmonary Suppuration."——At the meeting of the Allegheny County Medical Society, Pittsburgh, March 21, Dr. Russell R. Jones, chairman of the public relations committee, made a preliminary report on the dispensary situation in Pittsburgh; the scientific program included addresses by Drs. John Clarence Kelly, McKeesport, on "Clinical Aspects of Cancer of the Cervix"; David L. Simon "Urinary Infections in Children"; John Day Garvin, "Stomach Therapy in a Depression," and John G. Bowman, Litt.D., chancellor of the University of Pittsburgh, "Educa-

tional Aspects of the Practice of Medicine."——Davenport Hooker, Ph.D., and Ira D. Hogg, Ph.D., addressed the Pittsburgh Neurological Society, March 20, on "Human Fetal Activities."

Bills Introduced.—S. 718, to amend the optometry practice act, proposes to make it unlawful for a registered optometrist to display any word or words descriptive of his profession other than the word "optometrist." If the word "optometrist" is displayed by a registered optometrist, it is to be set forth in letters equal in size to the size of the letters used in the optometrist's name. H. 1606, to amend the osteopathic practice act, proposes to strike out that provision which requires all applicants for licenses to have had one year of college credits in chemistry, biology and physics before beginning their osteopathic study. The bill proposes to permit applicants to receive these college credits any time before applying for licenses. H. 1645, to amend the law regulating the operation of maternity hospitals in cities of the third class, in boroughs, in towns and in townships, proposes to increase license fees from $10 to $15. H. 1648, to amend the laws regulating the operation of private hospitals and private nursing homes, proposes to increase license fees from $10 to $15. H. 1939, to supplement the workmen's compensation act, proposes to make compensable thirteen different occupational diseases when contracted in the course of an employment covered by the act.

Philadelphia

Personal.—Dr. Carle Lee Felt, of the surgical staff of Stetson Hospital, was guest of honor at a luncheon given by hospital associates and officials of the John B. Stetson Company recently. He retires this year after twenty-five years' association with the hospital.——Dr. Robert G. Torrey, medical examiner in the tuberculosis division of the Philadelphia department of public health, recently received from his associates a desk set in honor of his completion of twenty-five years of public health service.

Society News.—Drs. James M. Baty and Louis K. Diamond addressed the Philadelphia Pediatric Society, March 14, on "Leukemia in Childhood" and "Anemia of Prematurity," respectively.——Drs. Stephen Dana Weeder and Calvin M. Smyth, Jr., were the speakers at a meeting of the Philadelphia Academy of Surgery, March 6, on "Pilonidal Cysts" and "Problem of Recurrent Hernia," respectively.——Drs. Joseph A. Perrone, Rankin, and Gabriel Tucker, among others, addressed the Philadelphia Laryngological Society, March 7, on "Thrush (Monilia Albicans) of the Larynx and Esophagus."——Dr. Alfred Gordon, among others, addressed the Philadelphia Psychiatric Society, March 10, on "Obsessional Phenomena in Schizoid Individuals in Relation to Eventual Schizophrenia."——The Franco-American Institute of Science was recently chartered in Philadelphia for the purpose of maintaining an international association "for the promotion of science and the perpetuation of friendly relations and cooperation between scientists of France and of America." Dr. Alfred Stengel is a member of the board of directors.

TENNESSEE

State Medical Meeting at Nashville.—The one hundredth annual session of the Tennessee State Medical Association will be held in Nashville, April 11-13, with headquarters at the Hotel Hermitage. The tentative program announces that Dr. Dean Lewis, Baltimore, President-Elect of the American Medical Association, will make an address on surgery; Dr. Olin West, Chicago, Secretary and General Manager of the Association, will discuss the report of the Committee on the Costs of Medical Care, and Drs. Roger S. Morris, Cincinnati, and George E. Brown, Rochester, Minn., will speak on "The Rôle of the Hematopoietic Hormone in Diseases of the Blood" and "Recent Concepts of Hypertension," respectively. Among Tennessee physicians who will make addresses are:

Dr. William T. Pride, Memphis, Acidosis and Alkalosis in Pregnancy.
Dr. John C. Ayres, Memphis, Present Status of Hormone Therapy in the Female.
Drs. William D. Haggard and Carl R. Crutchfield, Nashville, Goiter.
Dr. Milton Smith Lewis, Nashville, Sodium Amytal in Treatment of Eclampsia.
Dr. Herman Spitz, Nashville, Bronchial Asthma.
Dr. Edward Dunbar Newell, Chattanooga, Peritoneal Drainage.
Dr. Tom R. Barry, Knoxville, Primary Carcinoma of the Ureter.
Dr. Claude P. Fox, Jr., Greeneville, Anesthesia from the Standpoint of the Surgeon.

The Tennessee State Pediatric Association will hold its annual meeting in Nashville, April 10, with Dr. William Weston, Columbia, S. C., as guest speaker, on "Recent Progress in the Solution of Problems in Nutrition." The Tennessee Academy of Ophthalmology and Otolaryngology will also meet, April 10, with Dr. Harris H. Vail, Cincinnati, as guest speaker, on "Certain Phases of Vidian Neuralgia."

Bills Introduced.—S. 489 and H. 768 propose to create a board of cosmetic therapy and to regulate the practice of cosmetic therapy. Licentiates are to be permitted, among other things, to remove superfluous hair about the face. Apparently, the manner in which they may remove superfluous hair is to be left to their discretion. H. 505 proposes to authorize the governor to appoint a public health council to consist of six licensed physicians and one licensed dentist. The council is to formulate the policies of the department of public health and is to select the commissioner of public health. H. 705 proposes, in effect, to permit licensed dentists to make and sign death certificates. H. 714 proposes to authorize the sexual sterilization of certain socially inadequate inmates of state institutions. Nothing in the act is to be construed to prevent the medical or surgical treatment for sound therapeutic reasons of any person by a licensed physician, which treatment may incidentally involve the nullification or destruction of the reproductive functions. H. 857 proposes to authorize the governor to appoint a public health council to consist of three licensed physicians, one licensed dentist, one faculty member of a standard teachers' college or university, and one person appointed from the membership of the Tennessee Congress of Parents and Teachers or the Tennessee Federation of Women's Clubs, and the commissioner of public health. The council is to govern the general policy of the state department of public health and is to nominate the commissioner of public health for appointment by the governor. H. 891, to amend the workmen's compensation act, proposes that whenever an employer requires an injured employee to submit to a physical examination the employee is to have the right to select his own physician at the employer's expense. H. 940, to amend the laws regulating the possession and distribution of narcotic drugs, proposes to classify "cannabis indica or cannabis americana, commonly known as loco weed" as a narcotic drug.

VERMONT

State Board Appointment.—Dr. Frank A. Walsh, Readsboro, has been appointed a member of the Vermont State Board of Medical Registration to succeed Dr. Michael F. McGuire, Montpelier.

WEST VIRGINIA

Society News.—Dr. Paul B. Steele, Pittsburgh, addressed the Monongalia County Medical Society, Morgantown, February 7, on "Subacromial Bursitis."——Dr. Archer A. Wilson, Charleston, addressed the Kanawha County Medical Society, February 14, on "Practical Information Obtained from Examination of Spinal Fluid."——A symposium on influenza was presented before the McDowell County Medical Society in February by Drs. Cecil F. Johnston, Welch, Victor L. Wetherby, Welch, and Albert C. Van Reenen, Davy.——Drs. Thomas W. Moore and James R. Bloss, Huntington, addressed the Logan County Medical Society, Logan, on iritis and obstetric forceps, respectively.——Dr. Claude Frazier, Montgomery, presented a paper on hematemesis before the Fayette County Medical Society, Montgomery, February 14.——Dr. Otto H. Schwarz, St. Louis, addressed the Ohio County Medical Society, Wheeling, March 17, on "Puerperal Infection: A Discussion of Endogenous and Exogenous Types."

WYOMING

Changes on State Board of Medical Examiners.—Four new members were recently appointed to the State Board of Medical Examiners: Drs. Joseph R. Hylton, Douglas; Walter M. Lacey and Clyde Y. Beard, all of Cheyenne, and William A. Steffen, Sheridan. T. W. Tarrant. D.O., Laramie, was reappointed. The new terms begin in May.

GENERAL

Physical Therapy Organizations Merge.—Announcement is made of the amalgamation of the American Physical Therapy Association with the American Congress of Physical Therapy, the joint organization to be known by the latter name, with central offices in Chicago. The twelfth annual session of the congress will be held in Chicago, September 11-15, at the Palmer House, under the presidency of Dr. Gustav Kolischer.

Board to Regulate European Students.—The National Board of Medical Examiners has adopted rules in harmony with the regulations adopted by the Federation of Medical Boards of the United States concerning the acceptance of

students trained in European medical schools. Under the new requirements, candidates for the board's diploma must present evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association. He must have graduated from a four year medical course in Europe and must have obtained a license to practice medicine in the country in which the medical school from which he graduated is located.

Medicinal Liquor Bill Becomes Law.—President Roosevelt signed the Celler-Copeland bill relating to the prescribing of medicinal liquor, March 31, after it had passed the House of Representatives, March 30, by a rising vote of 153 to 59, and the Senate, March 29, without a roll call. The new law repeals legislation which limited the physician's right to prescribe liquor by arbitrary quantitative restriction by providing that "no more liquor shall be prescribed to any person than is necessary to supply his medicinal needs." The Attorney General and the Secretary of the Treasury are, however, authorized to issue regulations limiting the quantity to be prescribed at any one time. Until such new regulations are issued, existing regulations will continue in force. Beginning January, 1934, ordinary prescription forms may be used, but they must be stamped by a special stamp issued by the Commissioner of Industrial Alcohol. Physicians will be required to keep in their offices book records showing the nature of the ailments for which prescriptions are given; these records are to be open to inspection by accredited officers charged with enforcing the prohibition laws.

Society News.—The National Medical Association will hold its annual meeting in Chicago in August. Dr. Morris Fishbein, Chicago, will address the association at the annual banquet, August 17, on "Changes in the Nature of Medical Practice."——The Medical Library Association of the United States will hold its annual meeting in Chicago, June 19-21. ——The Polish Medical and Dental Association of America will hold its next annual convention in Chicago, July 17-19. ——The Southern Medical Association announces that the 1933 session will be held in Richmond, Va., November 14-17.—— Dr. Gerry R. Holden, Jacksonville, Fla., was named president-elect of the Southeastern Surgical Congress and Dr. William M. Scruggs, Charlotte, N. C., vice president, at the annual meeting in Atlanta, March 8. Dr. Willis C. Campbell, Memphis, Tenn., became president and Dr. Benjamin T. Beasley, Atlanta, was reelected secretary.——Dr. Benjamin F. Bailey, Lincoln, Neb., was elected president of the Northwest Regional Conference at its recent meeting in St. Paul, in February, and Dr. Harold M. Camp, Monmouth, Ill., secretary.—— The Catholic Hospital Association will hold its annual meeting in St. Louis, June 12-15.——The National Committee for Mental Hygiene has discontinued the *Mental Hygiene Bulletin*, for reasons of economy.

Medical Bills in Congress.—*Bills Introduced:* H. R. 3073, introduced by Representative Kelly, Pennsylvania, proposes to authorize the Bureau of Mines to manufacture radium for use by the Administrator of Veterans' Affairs in the treatment of diseases of persons receiving hospitalization in the United States Veterans' Administration hospitals. H. R. 3207, introduced by Representative Martin, Colorado, proposes to authorize an appropriation not to exceed $400,000 for the reconditioning of buildings at the United States Veterans' Administration Hospital, Fort Lyon, Colorado. H. R. 3768, introduced by Representative McCormack, Massachusetts, proposes to change the name of the retail liquor dealers' stamp tax in the case of retail drug stores or pharmacies to "medicinal spirits stamp tax." H. R. 4335, introduced by Representative Rogers, Massachusetts, proposes to authorize an appropriation of $1,400,000 for the erection of a new hospital and diagnostic center at Boston. H. R. 4351, introduced by Representative Kvale, Minnesota, proposes to extend the privileges of compensation and hospitalization to American citizens who volunteered in the French forces and who, while serving in the Foreign Legion or while serving in flying status in the Lafayette Escadrille or Lafayette Flying Corps, received injuries of a permanent nature of more than 10 per cent degree in line of duty between April 6, 1917, and Nov. 11, 1918.

CORRECTION

Tuberculosis Mortality in the Netherlands.—The Netherlands correspondent wrote in his letter in THE JOURNAL, March 18, that the mortality from tuberculosis in that country in 1931 had dropped to 7.31 per hundred thousand inhabitants. The figure for the mortality rate probably was intended to be 73.1.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 11, 1933.

Automobile Accidents

A bill that will enable persons injured on the roads by automobiles to recover compensation without proof of negligence on the part of the owner or user of the car was read a second time in the house of lords. In supporting the bill, Lord Moynihan pointed out the burden placed on the physician and on hospitals by road accidents. The physician was called at what might be the busiest part of the day to render service and supply drugs and dressings, which was rarely remunerated. A central pool should be established, to which every insurance company concerned in motor accidents should pay a small sum annually. From this pool physicians who were not otherwise remunerated should be paid a fee for first aid to the injured. No small measure of the success of insurance companies depended on the treatment given in hospitals, but the companies showed small recognition of this fact. Much of the burden of road accidents was borne by the smaller hospitals. The objection was made by the government that the bill went too far, as it would increase the number of claims and the amount paid in compensation, and so increase the motor insurance premiums. It was decided to send the bill to a select committee, where the questions raised would be fully examined.

The Slippery Slope of Socialism

The national health insurance act provides only a general practitioner service. Naturally, demands for extension of the act are being made, and schemes to carry this out are being brought forward. If it is the duty of the state to supply one form of treatment it is logical that it should supply all forms, and specialists are always urging this. But financial stringency stands in the way. The British Medical Association even brought forward a scheme for the fullest possible medical service for the greater part of the nation through the coordination of private practice, state service, hospitals and the ancillary branches of medicine. This was at the time the socialist government was in power and more medical socialism seemed imminent. The association thought that it would be better to have its own scheme, in which the general practitioner still retained some autonomy, than the universal conversion of physicians into state officials. But the prodigal expenditure of the socialists brought the country within sight of ruin and with their defeat stopped for the time any grandiose medical scheme. However, the demand for extension of the service provided by the insurance act continues, and once on the slippery slope of medical socialism downward movement is always threatening. In the association's scheme, arrangements for a comprehensive dental service were included. Quite apart from the insurance act, there is a good deal of dental socialism in existence—in connection with maternity and child welfare, tuberculosis and school services, and industrial dental schemes. A committee of the British Dental Association has examined the question of the provision of dental benefit under the insurance act and made a report, which points out that, dental health being an important factor in general health, the prevention and early treatment of dental disease is most important. For this, examination at regular intervals is necessary. An itemized scale of fees for the treatment of insured persons would therefore not be in their best interests. Payment on a capitation basis and a panel system would leave the dentist free to exercise his professional judgment and insure the contact between patient and dentist necessary for prevention and maintenance of dental fitness. It would foster the development of the family dentist,

analogous to the family doctor, whose importance has been stressed by the British Medical Association. Every insured person should be assured of the services of such a practitioner. In return for the annual capitation fee, the dentist will contract to supply all the treatment and prosthetic work that falls within the definition to be laid down. But before accepting a person for admission to his list the dentist will be entitled to require that any treatment required to render him dentally fit shall be previously carried out. The scope of the treatment would include scaling, gum treatment, filling with plastics, root treatment, extractions with local and general anesthesia other than prolonged, and the provision and upkeep of dentures necessary for the maintenance of a reasonable standard of mastication and general appearance. The committee had great difficulty in arriving at a suitable capitation fee but concluded that it lay within the limits of $3 and $4 per annum. It is noteworthy that this is much more than the physician's capitation fee under the panel system, which is under $2. The dentist should encourage the patient to attend periodically for examination.

Adulterated Articles in Food Supply

The report for 1931 on the sale of food and drugs, just published by the ministry of health, shows that adulteration is declining. The number of samples of food and drugs submitted to public analysts was 136,169, of which 6,324, or 4.6 per cent, were found to be adulterated or not up to standard. This compares favorably with 4.8 per cent in 1930 and 5.4 per cent in 1929. There were 561 contraventions of the act regulating preservatives in food, but in 207 cases the use of the preservative would have been permissible if its presence had been declared on the label. Of 70,201 samples of milk analyzed, 4,507 were adulterated or not up to standard. Of 10,502 samples of butter, 96 were adulterated or not up to standard, and of 1,573 samples of cheese, 40 were reported on adversely. Twenty were wrapped, and tin in varying proportion was found in them, the proportion being as high as 7 grains to the pound in one. However, the efforts recently made by manufacturers to reduce the degree of contamination from the tinfoil used to wrap cheese appear to meet with some success. In a sample of strawberry jam, only one fourth of the fruit was strawberries. Twenty-eight samples sold as "bread and butter" were bread and margarine, and in ten samples of cream buns and cream cakes the "cream" was wholly or partially vegetable fat. Nine samples of sausage were deficient in meat. Copper was found in several articles; the paper tips of some chocolate cigarets contained 800 parts per million.

The Low Irish Marriage Rate

The Roman Catholic Church is the one body in the British Isles which is resolutely opposed to artificial methods of birth control. It is therefore of interest to observe the course of population in a country where its teaching is followed. At a meeting of the Statistical and Social Inquiry Society of Ireland, Mr. James Meenan read a paper on the Free State marriage rate, which had been at a low level since the registration of marriage was made compulsory in 1864. There was a prolonged decline over the period 1873-1894, followed by a recovery, which was sustained until about 1920. Since then the rate had again declined. The principal causes of changes in the rate are the state of agricultural prices and the conditions of land tenure. Certain aspects of Irish life, such as the late age at which people entered gainful occupations, the absence of female employment and the low mortality among the older age groups explain the growing proportion of the unmarried and the postponement of marriage to an age which was steadily growing later. A further fall in the marriage rate, with a declining birth rate, would result in an excess of deaths over births. Thus Ireland, where the attitude toward birth control is hostile, is threatened with a similar decline of population as England, where there is no such hostility. Economic pressure is limiting population in both countries, but the mechanism in Ireland differs from that in England in that it is entirely a low marriage rate and late marriages.

Breeding from the Unfit

Dr. John Gifford of the Lancashire County Mental Hospital, in lecturing at a meeting of the Royal Sanitary Institute, repeated the warning of eugenists that there is too much breeding from the unfit. He pointed out that in a single generation the maternity and child welfare centers had halved the infant mortality. This unprecedented saving of life meant that many of the weakest stamina and poorest breed were being saved. Mental deficiency, bronchitis and dyspepsia were increasing. One in ten of the population was too dull or too sickly to earn a living unaided. One in 200 was or had been insane. One in 120 was feebleminded. Dr. Gifford urged that physicians should be trained to advise on conception control and in hereditary prognosis. There was a section of mental defectives that should be sterilized. This would have the advantage not only of preventing the production of defective children but also of removing the need for segregation.

PARIS

(From Our Regular Correspondent)

Feb. 22, 1933.

The Depopulation of the Island of Corsica

The island of Corsica, while it is not the least populated of the departments of France, is nevertheless the department in which depopulation is progressing most rapidly, owing to the constant decline in the birth rate. The birth rate for Corsica is 15.2 per thousand of population, whereas the average birth rate for France is 18.8 per thousand. The cause of this condition is peculiar and affects only this department. Corsica has the lowest percentage of marriages. Most of the young men go to the continent around the age of 18, to seek employment as government clerks. Corsica is covered in the center and in the western part by high mountains with many wooded tracts. In the eastern part there are many shallow rivers, which are a prolific source of malaria. There is little industrial development in the country and little commerce, except for a small area in the vicinity of the port of Ajaccio and a few grape-growing regions. The Corsican is abstemious and appears to have no need of luxuries. He is content to tend his sheep and his goats and to gather chestnuts in the woods. Much of this work is commonly left to the women and to the old men, of whom there are a great number, for their remarkable sobriety appears to be conducive to longevity. The young men come to France seeking service in the army or on the police force, which is more to their taste than agriculture or mining. Many civil service posts are held by Corsicans, all of whom return to their native land when they reach the age for retirement, and live without working, on their modest pensions. There are many women of marriageable age; 66.3 per thousand of the Corsican women are unmarried. The natural consequence is that the birth rate is low. There are only 400 married women per thousand of female population, as compared with 600 per thousand in the other departments of France. Corsican women are noted for their fecundity. In the island, statistics show 141 living new-born per thousand households, whereas, in continental France, the figure drops to 109, and even to 80 per thousand in some departments of France.

Preventive Medical Centers

Medical centers for the general examination of patients, such as have existed for some time in some other countries, are beginning to be established in large cities of France. They have encountered some opposition on the part of the medical

syndicates. The patients, it is pointed out, go direct to these centers without the advice of their attending physician; nevertheless, the group that has been formed under the chairmanship of Mr. Justin Godart, under the name of Parti social de la santé publique, is making great efforts to promote these centers in all departments of France. To appease the medical syndicates, it recommends that the family physician remain in close touch with the physicians in charge of these centers. The patient should make known at the center the name of his physician, who would then receive from the center a complete statement of the diagnosis. It is plainly specified that only the family physician should be entrusted with the treatment. Furthermore, the Parti social de la santé publique requests that the mayors of the communes send it a list of all births, provided the mother has no objections. The *parti* will then immediately send a visiting nurse to instruct the families in the principles of rational puericulture.

Decline in Accidents in Paris

According to statistics collected by the police of Paris, traffic accidents, during 1932, caused the deaths of 237 persons in Paris proper and 218 more in the Paris area, or a total of 455. This figure is lower by 148 than that for 1930, and lower by 44 than that for 1931, in spite of the increase in the total number of automobiles. The list of victims in 1932 includes 56 per cent of pedestrians, 16.5 per cent of cyclists, and 27.5 per cent of occupants of various vehicles. Fifty-three per cent of the accidents were due to errors on the part of drivers of vehicles, while 43 per cent were due to the negligence of victims. In 4 per cent of the cases, the responsibility could not be established. The accidents are distributed as follows: taxicabs, 45, 24 of which were due to the errors of drivers; private vehicles, 175, 109 of which were due to the errors of drivers; trucks, 132; motorcycles, 30; bicycles, 10; tramways, 31; horse-drawn vehicles, 14. The number of fatal accidents was highest during the afternoon. Sixty-eight accidents occurred between 1 and 3 p. m. and 118 between 5 and 9 p. m.

Personal

Dr. D. N. Eisendrath of Chicago has been appointed surgeon to the American Hospital in Paris, his special field being urology. In 1932 he was made a chevalier of the Legion of Honor.

BERLIN

(From Our Regular Correspondent)

March 6, 1933.

Blood Donors

In Berlin, an organization of blood donors for the municipal hospitals is to be worked out after the pattern of that already existing in the state of New York. The need of such organization is widely felt, for transfusion for therapeutic purposes has acquired great importance. As Prof. Ernst Unger sets forth in an article in the *Deutsche medizinische Wochenschrift*, the state of New York has been trying out detailed regulations, which have now been enacted into law. Other organizations exist in foreign cities. Germany has had hitherto no organizations under official supervision, although some of the larger hospitals have established a special "donor group." Smaller hospitals and individual physicians are not in a position to make a suitable selection of donors, and thus a number of accidents have occurred. Narcotic and alcohol addicts have sometimes offered to serve as donors. In Berlin, the charge for 350 cc. of blood is 10 marks, or $2.38; up to 500 cc., 15 marks, or $3.57; and up to 1,000 cc., 20 marks, or $4.76. As a rule, relatives of the recipient, who demand no compensation, are preferred, since relatives are especially suitable as donors. In some cities, voluntary donors are rewarded by the presentation of diplomas, and employees who serve as donors are given a holiday. If other patients serve as voluntary donors, certain luxuries not usually dispensed are added to their diet. In Paris, a nurse who has served twenty-three times as donor was awarded the Cross of the Legion of Honor. The first examination of the donor should be made by a thoroughly trained clinical physician. Regular periodic examinations are necessary. Only such persons should be used as donors as have been examined in the current or in the previous month. Donors in Berlin receive a certificate that informs them about their rights and duties. They are compelled to report any illness to the blood donors' central, and they must appear regularly for examination.

Changes in the Social Insurance System

The political changes in the German *reich* will bring some changes in health insurance. As is well known, krankenkassen patients have been required, for some time, to pay, in addition to their regular dues, a further fee in case of illness. For the sickness voucher, which they must secure before seeking medical aid, they must pay 12 cents and must contribute the same amount toward the cost of each prescription. The federal cabinet has again made a searching inquiry with regard to the sick voucher fee paid by applicants for medical aid, and it was decided to abolish the sickness voucher. For the time being, owing to the necessity of economy in the krankenkassen, the fee will be reduced one half, or to 6 cents. In order to eliminate entirely the sick voucher fee, a reorganization of the whole system of krankenkassen will be necessary. The whole financial system of the krankenkassen is to be carefully studied. The federal cabinet will soon take the necessary steps leading up to this reorganization. Persons interested in health insurance look forward with interest to the outcome of these deliberations.

Medical Care in the Voluntary Work Service

The organization of the voluntary work service was described in THE JOURNAL, March 25, p. 983. Now an agreement has been reached between the federal commissary of the voluntary work service and the medical syndical leagues, the Hartmann league and the Deutscher Aerztevereinsbund, concerning the medical care that the participants in the voluntary work service are to receive. The Hartmann league has agreed to provide for the examination of applicants and for the payment of the fees required by physicians. The league will organize the medical service in the camps, through the federations of the local sick benefit associations, under contracts drawn up with the cooperation of the bureau of labor. For every camper, the same fee will be paid to the league of the krankenkassen that is paid for the unemployed members of the local and provincial krankenkassen having jurisdiction. The medical care will be given chiefly by the panel physicians of the krankenkassen; but it will be permissible for physicians who have not been admitted to panel practice to serve in that capacity, provided they are residents of the area controlled by the federation of krankenkassen. Such physicians will then be regarded as representatives of the panel physicians. Also physicians not admitted to panel practice, but who may be participants in the voluntary work service, may, on request of the camp, be assigned medical work among the campers. They will be granted a compensation if their service relieves the panel physicians of their responsibilities. The Hartmann league will petition the federal commission to grant that physicians not previously admitted to panel practice may count their activity in the voluntary work service (up to six months) toward the three years of clinical activity, which must precede admission to full panel practice. This agreement opens up to the medical profession a new rôle in the line of professional self-administration, which, in case there is a further extension of the voluntary work service or possibly the introduction of a general compulsory work service, will gain importance.

Celebration of Society for Combating Alcoholism

The Deutscher Verein gegen den Alkoholismus celebrated the fiftieth anniversary of its founding, March 29. The association can look with pride on its accomplishments, which have contributed much to the welfare of the people. Among the founders of the association was a physician, Professor Nasse of Bonn, who served as the first president. There is no question that the association has contributed much toward strengthening the belief among all strata of the population that the crusade against alcoholism is a fight for child welfare and family happiness as well as for the security and progress of civilization. Nor is there any doubt that the consumption of alcoholic beverages in Germany has declined. During the years immediately following the war, there was a distinct reduction in the amount of morbidity due to the abuse of alcoholic beverages, but the improvement did not continue and the trend is now in the other direction, the number of illnesses due to such causes amounting at present to more than 13,000 a year. The number of mental and nervous patients being cared for in institutions, and the number of misdemeanors, crimes and traffic accidents that are closely connected with alcoholism are still great. The association comprises at present 254 constituent chapters, together with numerous groups of specialists and 115 caretaking centers for alcoholic addicts. The association does not seek to promote total abstinence but wages a battle against inebriety, which must have the hearty support of all physicians.

VIENNA

(From Our Regular Correspondent)

Feb. 15, 1933.

Syphilis of Central Nervous System

Prof. Dr. M. Schacherl delivered, in the Medicinisches Doktoren-Collegium, an address on the treatment of syphilis of the central nervous system, which he divided into lues cerebrospinalis, and tabes dorsalis and dementia paralytica. The first group affects the connective tissue and the blood vessels, or the mesodermal parts; the second group concerns the nerve tissue proper, the ectoderm. The transitions between the two groups are not sharply drawn, and not infrequently combinations of the two groups appear. In the diseased organs, virulent spirochetes of syphilis are always found. Years ago, before the syphilitic nature of tabes and dementia paralytica had been demonstrated, it was observed that iodine and mercury, the usual antisyphilitic treatment, was unavailing in those disorders, and that many other syphilitic disorders of the central nervous system remained refractory to that treatment. It came to be known that the medicine introduced into the blood stream easily came into action against the "mesodermal elements" but that the spirochetes "anchored" in the nervous tissue in "ectodermal syphilis" were hard to reach. Further research showed that a barrier exists between the blood and the cerebrospinal fluid, which prevents the entrance not only of spirochetes but also of medicines into the nervous system. This barrier consists of the meninges and the choroid plexuses, and not until it is damaged to such an extent that it is permeable to certain substances can the colonies of virulent spirochetes be successfully attacked. That condition is brought about either by the production of artificial fever or by the administration of an abnormally heavy single dose of an antisyphilitic remedy or normal doses over long periods. Or the barrier can be avoided by introducing a medicine through a lumbar or a cisterna puncture, directly into the cerebrospinal fluid. This route, however, permits only a weak concentration of the medicine, since strong solutions injure the nervous parenchyma. Such a puncture would have to be frequently repeated, which is hard to carry out. It has been found that a single spinal injection of, for instance, 0.001 Gm. of arsphenamine, or of 2 cc. of horse serum, is sufficient to cause permeability of the meninges to medicines administered by the intramuscular or by the intravenous route, for a period of sixty hours, which corresponds to the duration of the injury of the meninges caused by the lumbar puncture. If one desires to cause an injury of longer duration and thus permeability of the barrier, for the purpose of treatment, one needs only to administer repeated doses of medicines as soon as the first lumbar injection has fulfilled its purpose. The permeability can thus be preserved as long as is desired. Lumbar puncture with a positive Wassermann reaction and an increased lymphocyte count shows that treatment is necessary, but if the lymphocyte count is normal, a waiting policy may be pursued. Repeated punctures (every two or three months) will furnish an indication as to whether the syphilis is latent or active. A positive Wassermann reaction is of itself no indication for treatment. If courses of treatment are given too often or with too short intervals, strains of spirochetes are produced that become refractory toward arsphenamine, iodine, mercury or bismuth, and later are resistant to all treatment. Professor Schacherl recommended the following method: every other day, 0.30 Gm. of neoarsphenamine, fifteen injections in all, or a total of 4.5 Gm., or at the most 5.5 Gm., for each course of treatment; all injections to be given intravenously. During the treatment, the liver and the kidney must of course always be carefully watched. A combination with bismuth is likewise recommended; also a strengthening of the treatment, in dementia paralytica, with malaria or recurrent fever is advised. A high fever should not be induced because of the general injury to the organism. To combat the "crises" that may appear during the treatment, hypnotics rather than antipyretics should be employed.

The Unequal Distribution of Physicians

During the investigation to discover what means can be taken to lessen the number of medical students, statistics were collected on the number and distribution of physicians in Vienna and in the republic of Austria. Dr. Sonnenfeld discussed these data in "Mitteilungen der Wiener Aerztekammer." We learn that, during the period 1927-1931, the number of registered physicians in Vienna increased only by 103 (from 4,075 to 4,178), or an average of twenty physicians a year. Only in 1927 and in 1930 was there an actual increase, whereas the other three years showed a decrease. Not until 1932 was a further (slight) increase observable. With a population of about 1,860,000, in 1932, 4,820 physicians were counted, but of that number only 3,586 were engaged in practice, the remainder being either medical officials or interns in hospitals. Of the total number 3,586, 1,862 were general practitioners, 1,060 were specialists, and 664 were physician-dentists, to which number may be added 1,172 "dental technicians," who are not physicians. The distribution of the specialists follows: 76 surgeons, 141 dermatologists (including syphilologists), 154 gynecologists and obstetricians, 169 internists, 27 specialists in respiratory diseases, 76 neuropsychiatrists, 64 ophthalmologists, 25 orthopedic surgeons, 97 otorhinolaryngologists, 91 pediatricians, 32 physical therapeutists, 53 roentgenologists, 37 urologists—and eighteen laboratories for chemical and histobacteriologic researches. In Vienna there is one specialist to each 1,800 inhabitants, and one practitioner to each thousand inhabitants, and a physician-dentist to each 3,000 inhabitants, or, on an average, one medical practitioner to each 520 inhabitants. Austria outside of Vienna presents entirely different conditions. With a population of about 4,500,000, the number of physicians increased, during the period 1927-1932, from 3,334 up to 3,542, or by 208 physicians, of whom 2,741 were practitioners, 455 specialists and 346 physician-dentists. Of this total number, 2,575 received fixed salaries from local

or municipal corporations. The proportion of physicians to inhabitants is as 1 to 1,315, but this proportion varies, with the position of the various sanitary districts, between 1:929 and 1:2,399. In the eastern provinces and in the mountainous provinces the population is sparse, and the percentage of physicians is low.

From these data, the conclusion is reached that in the republic of Austria it is hardly justifiable to speak of a surplus of physicians. There is, however, an unequal distribution of practicing physicians, since the preponderant metropolis, which has only 30 per cent of the population, has more than 50 per cent of the physicians. In this day of the small auto, the radio and graduate courses at the university, every physician can easily keep in touch with the progress of culture in the cities, and it is eminently desirable that more of the young physicians be induced to settle in the rural districts, which offer a fairly good opportunity for not only the general practitioner but also the specialist.

Demonstration of Tubercle Bacilli in the Blood

Prof. H. Busson of the Vienna serologic institute delivered recently an address before the Vienna Medical Society on his research on the demonstration of tubercle bacilli in the blood. Of 150 samples of blood from patients with clinically established tuberculosis, which he examined by cultivation, by inoculation into animals and in stained preparations, only 26, or 18 per cent, gave positive results. The methods of examination are not of equal value. In ten cases, inoculation into animals was positive, although cultivation gave negative results, and in two cases the reverse was true. Even patients with fever and severe progressive tuberculosis have not infrequently bacillus-free blood. Of twenty-nine patients with tuberculosis of the skin, 17 per cent were positive; twenty-one cases of polyarthritis with clinically manifest tuberculosis gave 43 per cent of positive results, cultivation and inoculation showing the same values. It was discovered later that in the positive cases the blood had been derived during the upward trend of the fever curve, and in all the negative cases during the downward trend of the curve. For the migration of bacilli into the blood several factors appear to be responsible, particularly the state of immunity. So long as immunity exists, the occasional entrance of bacilli into the blood appears to have no importance. Not until a "decompensation" occurs can the bacilli in the blood increase. Professor Busson does not think that the conception of certain authors in regard to the etiologic importance of tubercle bacilli for polyarthritis is well founded but rather that, in this disease, bacillemia is a chance condition. He holds, furthermore, that bacilli are for the most part eliminated from the blood stream by the kidneys.

Graduate Courses in Vienna

As in years past, the Vienna Faculty of Medicine is preparing this year again a number of postgraduate courses for graduate physicians of all countries. The courses cover twelve days of instruction, of from five to six hours a day, and are open to any physician on payment of the fee of 50 shillings, or about $7, per person. Registrations should be addressed to the "Kursbureau," Dr. A. Kronfeld, Vienna, IX, Porzellangasse 22. The courses to be given in 1933 are: "Diseases of the Heart and Lung," February 13-26; "Laryngology, Rhinology and Otology," April 3-15, and "The Most Important Medical Questions of the Day, with Especial Reference to Treatment" (so-called rural physicians' course), September 25 to October 6. A further course on modern therapy, from November 27 to December 8, is being prepared. Each of these postgraduate courses is given by most competent representatives of the specialty concerned, and comprises theoretical, practical and demonstrative clinical and laboratory instruction.

JAPAN

(From Our Regular Correspondent)

Feb. 25, 1933.

Discussion About Cod Liver Oil

The administration of cod liver oil to undernourished school children has started a discussion between the school physicians and the dietetic laboratory, the chief of which is Dr. Saeki. In the upper house of parliament, Dr. E. Kanasugi, who is opposed to the administration of cod liver oil, told the minister of education that these children are given it without any previous careful medical examination. He was of the opinion that before any such medicine as cod liver oil is given to these children they should first be well nourished with wholesome food. He said that the free school lunch given to the poorer children at the expense of the state is quite doubtfully effective. A sum of money amounting to more than 2,000,000 yen was spent for free lunches last year.

Proposed Changes in Midwifery

The present law regulating midwives was made in 1899; since then there has not been any change, and yet medicine has made remarkable progress in the last thirty years. The proposed new law would raise the position of midwives and also license them to give hypodermic injections, make perineal repair and give injections in case of asphyxia of new-born babies. The midwife school should be raised to a higher status, taking in those who have finished the better girls' schools.

Death of Professor Miwa

Dr. Tokukan Miwa of Tokyo, professor emeritus of Chiba Medical University, died of pneumonia, February 19, aged 75. After graduating from Tokyo Imperial University Medical Department, he went to Germany to study surgery. On returning to Japan, he was appointed professor in Chiba Medical College and when this college became a university he became its first president. He devoted almost his whole life to medical education. He was also a good clinician and, indeed, the pioneer of surgery in this country. His "Surgical Therapeutics" and his "System of Surgery" were most valued books of fifteen volumes each. He retired from public life about ten years ago.

The Government and the Prevention of Tuberculosis

The committee of forty-eight persons of the board for the investigation of national hygiene convened under the presidency of Baron Yamamoto, the home minister, January 20. The government is reported to have decided on a national policy for the prevention of tuberculosis. The chief of the sanitary board of the home office said that the deaths reported as due to tuberculosis in 1930 numbered 119,635; that is, 18.56 deaths per 10,000 of population. The actual number must be still larger. Deaths from tuberculosis rank first in number. The number of cases may be roughly estimated as more than 1,200,000, or one case for each ten families. The annual expenditure by the government in combating it has been only 3,000,000 yen, but the home office is anxious to take up active measures at once. A special committee was appointed, numbering thirty-three, with Dr. Kanasugi, a member of parliament, as chairman. The special committee will meet every Tuesday for several months. At the first meeting reports from all sections were received. Dr. Takano, the chief of the prevention board in the home office, stated that it is planned to place a prevention expert in every local government, to establish a sanatorium for children, to build a special home for convalescents, to have a training center for prevention experts, to popularize the knowledge of prevention all over the country, and to establish compulsory reporting of cases.

Marriages

HERBERT SESSIONS WELLS, Nashville, Tenn., to Miss Salome Winckler of Madison, Wis., February 24.

MANFRED CALL, III, to Miss Mary Poppenheim Miller, both of Richmond, Va., February 3.

JAMES HUNT ROYSTER to Miss Louise Moss, both of Richmond, Va., February 22.

HOWARD E. SPAFFORD, Malta, Ill., to Miss Ila Baxter of DeKalb, March 4.

LOUIS Z. FISHMAN to Miss Julia Mittelman, both of Chicago, March 19.

Deaths

William Briggs Tatum ⊕ Brooklyn; Medical Department of Emory University, Atlanta, Ga., 1916; member of the American Urological Association; fellow of the American College of Surgeons; formerly instructor in urology, Long Island College of Medicine; chief of the female and children's urologic clinic, Long Island College Hospital, the urologic clinic, Coney Island and Harbor hospitals, and the syphilis clinic, Brooklyn Eye and Ear Hospital; aged 39; was killed, March 2, when he jumped or fell from a third story window.

Martin William Reddan, Trenton, N. J.; Jefferson Medical College of Philadelphia, 1900; member of the Medical Society of New Jersey; fellow of the American College of Surgeons; served during the World War; medical director of St. Francis Hospital and the New Jersey State Prison Hospital; on the staff of St. Michael's Orphanage; aged 62; died, March 1, of cerebral embolism.

Joseph Paul Murphy, Brooklyn; College of Physicians and Surgeons in the City of New York, Columbia University, 1894; fellow of the American College of Surgeons; on the staffs of St. Mary's Hospital, Coney Island Hospital and Shore Road Hospital, Brooklyn, and St. Joseph's Hospital, Far Rockaway; aged 61; died, February 22, of heart disease.

William Franklin Temple, Boston; Harvard University Medical School, Boston, 1881; member of the Massachusetts Medical Society and the Associated Anesthetists of the United States and Canada; formerly on the staffs of St. Elizabeth's Hospital and the Carney Hospital; aged 79; died, February 2, in a local hospital, of arteriosclerosis.

Frank Amos Chapman ⊕ Chicago; Marion-Sims College of Medicine, St. Louis, 1897; Rush Medical College, Chicago, 1914; assistant clinical professor of medicine, Rush Medical College; served during the World War; aged 56; on the staff of the Washington Boulevard Hospital, where he died, March 12, of uremia and nephritis.

Hilliard Wood ⊕ Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1885; fellow of the American College of Surgeons; formerly professor of diseases of the eye, ear, nose and throat at his alma mater; on the staff of St. Thomas Hospital; aged 67; died, February 23, of heart disease.

William James Wanless, Glendale, Calif.; Medical Department of the University of the City of New York, 1889; fellow of the American College of Surgeons; formerly a medical missionary in India; was knighted by King George V for his service to the Indian people; aged 67; died, March 3.

James Thomas Gammage, Pineview, Ga.; Southern Medical College, Atlanta, 1891; member of the Medical Association of Georgia; secretary of the Wilcox County Medical Society; aged 63; died, March 9, in Macon, of heart disease and pneumonia following an operation.

Marshall Doig MacNaught ⊕ Walton, N. Y.; Baltimore Medical College, 1910; coroner; aged 49; died, March 8, in the Aurelia Osborn Fox Memorial Hospital, Oneonta, of an infection resulting from a slight wound from an instrument, incurred while treating a patient.

Daniel J. Wallace, Sparta, Mich.; University of Michigan Medical School, Ann Arbor, 1876; formerly village president, member of the village council, member of the board of education, and village and township health officer; aged 80; died, February 19, of heart disease.

Hartwell N. Lyon, St. Louis; College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, 1890; fellow of the American College of Surgeons; aged 68; was found dead, March 1, of poison, presumably self administered.

James Purdy Roth ⊕ Shenandoah, Pa.; Jefferson Medical College of Philadelphia, 1915; served during the World War; surgeon-in-chief of the Locust Mountain State Hospital; aged 41; died, February 28, in the Emergency Hospital, Washington, D. C., of pneumonia.

Neil Andrews, Oshkosh, Wis.; Northwestern University Medical School, Chicago, 1904; member of the State Medical Society of Wisconsin; fellow of the American College of Physicians; aged 63; died, March 7, of cerebral embolism and carcinoma of the bladder.

Sibley Holmes, Foley, Ala.; Medical College of Alabama, Mobile, 1895; member of the Medical Association of the State of Alabama; formerly member of the state legislature; mayor of Foley; aged 60; died, March 9, of a mastoid infection, following influenza.

Armistead L. Wellford, Richmond, Va.; Medical College of Virginia, Richmond, 1880; Medical Department of the University of the City of New York, 1882; member of the Medical Society of Virginia; aged 75; died, February 1, of carcinoma of the prostate.

Thomas L. Bowmar ⊕ Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1915; on the staff of the Prospect Heights Hospital; aged 49; died, March 6, in the Methodist Episcopal Hospital, of a throat infection.

George Turner Horne ⊕ Augusta, Ga.; University of Georgia Medical Department, Augusta, 1894; assistant professor of clinical gynecology at his alma mater; formerly member of the city council; aged 61; died, March 6, of heart disease.

Henry Allen Higley, Brooklyn; College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, 1888; member of the Medical Society of the State of New York; aged 66; died, March 11, of heart disease.

Albert August, Cambridge, Mass.; Harvard University Medical School, Boston, 1892; member of the Massachusetts Medical Society; for many years on the staff of the Cambridge Hospital; aged 62; died, March 7, of cerebral hemorrhage.

Emanuel Oliver Benson, Chicago; Rush Medical College, Chicago, 1900; formerly assistant professor of pediatrics, University of Illinois College of Medicine; aged 62; died suddenly, March 22, of chronic myocarditis and acute dilatation of the heart.

Arthur V. Marquardt, St. Louis; St. Louis College of Physicians and Surgeons, 1905; member of the Missouri State Medical Association; aged 57; on the staff of the Deaconess Hospital, where he died, March 1, of cirrhosis of the liver.

Tilly Alexander Martin, St. Louis; Bellevue Hospital Medical College, New York, 1870; Confederate veteran; formerly professor of diseases of children, Barnes Medical College; aged 84; died, February 4, of carcinoma of the rectum.

G. A. H. Dufresne, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1894; professor of physiology and clinical instructor in applied anatomy, University of Montreal Faculty of Dentistry; died suddenly, January 26.

William Wiley Walls, New Hope, Ala.; Birmingham Medical College, 1913; member of the Medical Association of the State of Alabama; aged 48; died, March 4, in the Highland Baptist Hospital, Birmingham, of agranulocytosis.

Edwin H. McKinney, Doylestown, Ohio; Ohio Medical University, Columbus, 1905; member of the Ohio State Medical Association; president of the Wayne County Medical Society; aged 55; died, March 2, of heart disease.

Amasa Day Chaffee, Chester, Conn.; College of Physicians and Surgeons in the City of New York, Columbia University, 1893; aged 62; died, February 27, in the William Wirt Winchester Hospital, West Haven, of heart disease.

Frank Elmore Thompson, San Angelo, Texas; University of Wooster Medical Department, Cleveland, 1896; member of the State Medical Association of Texas; aged 62; died, Dec. 29, 1932, of carcinoma of the small intestine.

William Golden Mortimer, New York; Medical Department of the University of the City of New York, 1885; member of the Medical Society of the State of New York; aged 79; died, March 3, of coronary thrombosis.

Benjamin Whitney Gleason, Manchester, N. H.; University of Pennsylvania School of Medicine, Philadelphia, 1901; served during the World War; aged 62; died, February 28, of diabetes mellitus and coronary thrombosis.

Samuel Horton Havice ⊕ Fort Wayne, Ind.; Bellevue Hospital Medical College, New York, 1884; aged 73; died,

March 1, in the University Hospital, Ann Arbor, Mich., of chronic myocarditis.

Merritt Henry Eddy, Middlebury, Vt.; University of Vermont College of Medicine, Burlington, 1865; member of the Vermont State Medical Society; aged 100; died, March 3, of coronary occlusion.

Peter Charles Reilly ⊕ Williamsport, Pa.; Jefferson Medical College of Philadelphia, 1890; aged 68; formerly on the staff of the Williamsport Hospital, where he died, February 10, of pneumonia.

Harry S. Blackfan, Cambridge, N. Y.; Eclectic Medical Institute, Cincinnati, 1886; for many years health officer of the town of Cambridge; aged 76; died, January 29, of cerebral hemorrhage.

Ralph Sherman Michel ⊕ Chicago; University of Pennsylvania School of Medicine, Philadelphia, 1876; aged 81; on the staff of the University Hospital, where he died, March 15, of uremia.

Arthur F. Reeves ⊕ Asheville, N. C.; George Washington University Medical School, Washington, D. C., 1906; served during the World War; aged 51; died, March 7, of heart disease.

Fred H. Daigneault, Acton Vale, Que., Canada; School of Medicine and Surgery of Montreal, 1884; formerly mayor and member of the school board; aged 72; died, February 26.

John P. Andrews, Marionville, Mo.; St. Louis Medical College, 1884; member of the Missouri State Medical Association; aged 85; died, Nov. 21, 1932, of chronic nephritis.

Hugh E. Atkins, Shreveport, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1889; aged 64; died, February 12, of heart disease.

George Wythe Tompkins ⊕ Coeburn, Va.; University of Virginia Department of Medicine, Charlottesville, 1896; aged 60; died, February 27, of heart disease.

Napoleon Dudley Kean, Olathe, Kan.; University of Michigan Medical School, Ann Arbor, 1890; aged 65; died, February 26, of cerebral hemorrhage.

James Loftin Kernodle, Burlington, N. C.; College of Physicians and Surgeons, Baltimore, 1893; aged 63; died suddenly, February 18, of heart disease.

George Lotz, Chicago; College of Physicians and Surgeons, Baltimore, 1892; aged 70; died, March 14, of coronary embolism and arteriosclerosis.

Eugene M. Fisher ⊕ Roswell, N. M.; Medical Department of Fort Worth (Texas) University, 1898; aged 57; died, January 28, of acute nephritis.

Albert George Stoddard, Spanish Fork, Utah; Rush Medical College, Chicago, 1882; aged 84; died, February 17, of influenza and uremia.

Cornelius Prentiss Harrigan ⊕ Chicago; Bellevue Hospital Medical College, New York, 1885; aged 69; died, March 18, of myocarditis.

Hermann Bayer, Coopersville, Mich.; St. Louis College of Physicians and Surgeons, 1887; aged 82; died, February 24, of biliary calculi.

William B. Littreal, Hiawatha, Kan.; University of Louisville (Ky.) School of Medicine, 1876; aged 82; died, February 19, of pneumonia.

John Logan McAlister, Wardell, Mo.; Barnes Medical College, St. Louis, 1904; aged 51; died, February 27, of pneumonia.

A. H. Longmire, Lost Creek, Tenn. (licensed, Tennessee, 1889); aged 79; died, February 24, of heart disease following influenza.

Oliver Q. Jones, Tecumseh, Mich.; Homeopathic Hospital College, Cleveland, 1873; aged 81; died, February 26, of influenza.

Annie Verth Jones, Cayuga, Ont., Canada; Faculty of Medicine of Trinity College, Toronto, 1896; aged 65; died in January.

William W. Cooper, Commerce, Texas; Dallas Medical College, 1902; aged 61; died, February 25, of cardiac insufficiency.

Louis Frederick May, Chicago; College of Physicians and Surgeons, Chicago, 1895; aged 63; died, March 16, of heart disease.

Michael McNalley, Canton, Ohio; Detroit Medical College, 1872; Civil War veteran; aged 90; died, Dec. 19, 1932.

Julius Adler ⊕ New York; Baltimore University School of Medicine, 1898; aged 64; died, February 7, of influenza.

Bureau of Investigation

GERMANIA TEA

Another Purgative Sold as an Obesity Cure

Quackery flourishes like a green bay tree. This not altogether because of the perennial gullibility of the public, but because the profits are large and easy and the penalties, under our *laissez faire* methods, negligible. One Carl Beyer is a case in point. Carl Beyer's present activity consists in making the public believe that he has a wonderful obesity cure in a product that he commonly calls "Germania Herb Tea" and occasionally calls "Germania Reducing Tea No. 14."

Carl Beyer came from Europe, either Austria or Germany—the records seem not clear on this point. He is alleged to have emigrated first to England in 1900 and from there to Canada in 1909. Locating in Winnipeg, Carl Beyer, with one Frank Beyer and Charles Bauer, started a "patent medicine" business in 1911 first known as the Sanol Manufacturing Company, but which became the Sanol Manufacturing Company of Canada, Ltd., in 1912. The latter company was incorporated under Manitoba laws, with an authorized capital of $200,000. The Sanol concern put out an alleged cure for diabetes known variously as "Sanol" and "Expurgo Anti-Diabetes." This nostrum was the subject of an article in this department of THE JOURNAL, Jan. 24, 1914.

How I Lost 62 Pounds Ugly Fat In 3 Months
Without harmful dieting or drugs
Margaret George
Simply Drank Delicious Germania Herb Tea With Meals—Fat Dropped Off Like Magic
Lost 3 lbs. a Week
How It Works
FREE DEMONSTRATION
Margaret George is now touring the United States. She is appearing in person in leading Department and Food Stores of the larger Cities—Watch your local newspapers for announcements — See Margaret George's own photographs and hear her wonderful experience from her own lips.
GERMANIA HERB TEA
Delicious - Hot or Iced
GERMANIA TEA CO.

THE LORING PARK QUACKERY

Soon after the world war started, Beyer left Canada and came to the United States. Prior to this a Chicago branch of the Winnipeg concern had been opened, first known as the Sanol Manufacturing Company and later as the Expurgo Manufacturing Company. Bauer, who had been secretary, treasurer and manager of the Canadian outfit, was president of the Chicago branch. When Beyer came to the United States, he settled in Minneapolis, and it was not long before he was signing letters as "president" of the Loring Park Sanatorium, which purported to treat and cure diabetes with a nostrum known as "Jamun Compound." It seems evident that Jamun Compound was essentially similar to the product also known as "Sanol" and "Expurgo."

In addition to the so-called sanatorium, there was created the Jamun Company, which sold Jamun Compound as a "patent medicine." There was also opened the Loring Park Clinic, with Carl Beyer as its "managing director." This advertised a line of "patent medicines" known as the "Beyer Home Remedies," which would cure such widely different conditions as goiter, diabetes, kidney trouble and female weakness. There was also a preparation that was pushed rather extensively, sold as a "positive cure for gallstones." The Loring Park Clinic,

in addition to claiming to cure one's physical ailments, offered to help one's financial weakness by accepting the public's money in any number of units of $100, for which "7 per cent gold notes" would be issued with "interest payable semi-annually" and "maturing in eighteen months from issuance."

In 1923 Carl Beyer was blatantly advertising in circulars two feet by one-and-a-half feet in size that his Loring Park Sanatorium was transplanting glands to cure diabetes and bring about "rejuvenation." At this point it may be mentioned that while Carl Beyer frequently describes himself as "Dr. Beyer," the man is not a graduate of any reputable medical school or licensed to practice medicine in any state.

In 1928 the Minnesota State Board of Medical Examiners pointed out that Carl Beyer was operating what was known as the Beyer's Clinic in Minneapolis and was using as a part of his advertising "come-on" a reproduction of an alleged diploma purported to have been issued to him by the "Physicians and Surgeons Institute of Endocrinology and Organotherapy." Of course, no scientific organization of any such name existed. Under "Minnesota News" published in THE JOURNAL, Feb. 13, 1932, it was reported that Carl Beyer had pleaded guilty to practicing healing without a basic science certificate and had been sentenced by Judge Reed of the district court to pay a fine of $200 or serve sixty days in the Minneapolis workhouse. Of course he paid the fine.

THE GERMANIA TEA SCHEME

In the latter part of 1932 and the first few months of the present year Beyer has been pushing his Germania Tea Company. This company is reported to have for its president and treasurer one F. W. Hartman, for its secretary Carl Beyer, and for its vice-president Beyer's wife, Anna. The Germania Tea Company, it seems, was incorporated in 1927 as the Germania Novelty Company, a name that was changed in March, 1932, to Germania Tea Company. It is said to have succeeded in part to the business of the Loring Park Clinic Corporation, which was unsuccessful. The Germania Tea concern is supposed to put out a line of "teas" from 1 to 14. The "full line," as listed in the advertising, comprise the following:

No. 1.	Kidney and Bladder.	No. 8.	Menstruation.
No. 2.	Constipation.	No. 9.	Diabetes.
No. 3.	Liver and Gall-Bladder.	No. 10.	Cough and Lung.
No. 4.	Stomach.	No. 11.	Piles.
No. 5.	Herb Tonic.	No. 12.	Nervousness.
No. 6.	Rheumatism.	No. 13.	Germania Elimination Tea.
No. 7.	Blood.	No. 14.	Germania Reducing Tea.

Germania Reducing Tea seems to be the big seller and most heavily advertised at the present time. The advertisements, which appear in newspapers that are not above carrying advertisements of products of this type, feature one Margaret George, whose "before-and-after" pictures form part of the advertising. Furthermore, a woman who is said to be Margaret George seems to be used as a "demonstrator." A few months ago the Chicago *Tribune* carried the Germania Tea advertising at about the same time that the paper was conducting a so-called free "cooking school." At one of the meetings of the cooking school, the virtues of Germania Tea were described and the Margaret George person was introduced to the class.

In some of the advertising put out by the Germania Tea concern, the reader is told:

"In 1925 the Loring Park Clinic, through its founder, Dr. Beyer, was impressed by the wide-spread use of this Herb Tea among German medical men. He brought samples back to his own clinic and there tested 'Germania Reducing Herb Tea' on overweight patients. It met every test and achieved phenomenal results.

"At the end of this period of tests and trials it was decided to offer 'Germania Reducing Herb Tea' to the general public and not confine its benefits to patients of the Loring Park Clinic alone."

Two analyses have been made of Germania Tea, one by the State Board of Health of Kentucky and one by the American Medical Association. The Kentucky report on Germania Tea read as follows:

> "The sample appears to consist principally of senna leaves with a small amount of Uva Ursi, Bluet (corn flower), calendula flowers, wild cherry, licorice, anise, fennel, stems that resemble shepherd's purse, and some unidentified leaf fragments."

The Kentucky analyst expressed the opinion that the ingredients of a $1.50 package of Germania Tea were worth approximately 15 cents. The report from the A. M. A. Chemical Laboratory follows:

LABORATORY REPORT

"One original package of Germania Herb Tea (Germania Tea Company, 608 First Avenue North, Minneapolis, Minn.) was submitted to the A. M. A. Chemical Laboratory for examination. The package contained a mixture of herbs. A pharmacognostic examination indicated the presence of the following products:

Senna, in large proportion.
Corn Flower (Bluet, *Centaurium cyanus*), quite abundant.
Tea, apparently a dark Indian variety; Farfara (Coltsfoot, *Tussilago Farfara*); Calendula (*Calendula officinalis*) and Elder Flowers (Sambucus Flowers): each in rather small quantities.
Fennel, Anise, Uva Ursi, and Juniper: each in very small quantities.

"The pharmacognostic examination failed to reveal the presence of wild cherry, licorice, capsella (shepherd's purse), phenolphthalein or thyroid. From the pharmacognostic examination the product appears to be largely senna."

Obviously, from the analyses, the essential drug in Germania Herb Tea is senna. The other ingredients seem to vary with different packages. It is apparent that the physiologic effect of taking Germania Herb Tea will be that of taking senna. The recommendations are that this mixture be used three times a day. As every physician knows, senna is a drastic purgative and is especially contraindicated in spastic constipation and in conditions of intestinal inflammation. It is especially to be avoided by persons who suffer from hemorrhoids.

The persistent and indiscriminate use of purgatives as a means of reducing weight is not only irrational but dangerous. Whatever reduction may be brought about by such means is due to the fact that the food eaten is hurried through the intestinal tract before much of it can be properly assimilated. In other words, a certain amount of food is totally wasted, while at the same time the digestive apparatus—and especially the lower bowel—is subjected to constant and repeated physiologic insults by the purgative.

Correspondence

HOSPITAL COSTS IN HARD TIMES

To the Editor:—The popularity of the hospital, especially the voluntary hospital, with all classes of the community, is a sociological phenomenon characteristic of our own generation. Time was when people who were sick remained at home with their families and were content to be treated in a modest way, both financially and scientifically, by the practitioner and an occasional consultant, unless they were suffering from a condition which required the highly technical facilities of a hospital. In those days a woman would frown on the suggestion of her physician to go to a hospital for the purpose of having her baby, and he would find considerable difficulty in convincing her that it was for her good rather than for his convenience.

One would expect that with the increase in the number of patients congregated in wards of large hospitals there would be a corresponding reduction in the expenditure for their care but, even in hard times like these it costs almost $40 a week to maintain such a patient in a good hospital. It might be wise to appraise the service responsible for the figures, to discover how much of this expenditure is due to necessities and how much to luxuries.

The management of the hospital household should not be a matter of great expense in itself, nor should the routine treatment which the patient requires in the form of necessary medical service, nursing service, food service and medication. In the course of the routine, however, certain by-products appear that are more or less necessary, and some of these find their way eventually into the regular budget of the hospital. This is true, among other things, of the special diagnostic and therapeutic laboratories, the educational program in all its phases, and the research program, all of which, if not controlled, may add considerably to the burden of upkeep.

Much has been said of late about the overproduction of hospital beds and their unequal distribution for communal purposes. It has indeed become the fashion to criticize the lavishness of hospital construction, though the critics were strangely silent during the prosperous era. These are, however, only a few factors that influence hospital costs. One may well admit that good money was needlessly spent for ornamental purposes when much less expensive and equally durable conveniences would have served the purpose, though it is doubtful whether this voluntary contribution could have been diverted in every case to other hospital uses. As far as scientific apparatus is concerned, there is scarcely a hospital that could be criticized on the score of lavish equipment; but that the equipment has been luxurious in many instances in those items that are classified under the heading "interior decoration," no one will question. In the matter of organization, some hospitals have a medical staff limited to their needs, while others (perhaps because their service is voluntary) multiply staff members to the point at which they are in each other's way and incur expenditure because they serve and have to be served both in personnel and in equipment.

Hospitals deserve no more criticism on the score of lavishness in raising per capita costs than any other activity which depends on money for its existence but, in hard times, we are driven to review practices that would be taken for granted in easier times. One should not draw hasty conclusions from a comparison of the expenditures of the voluntary hospital with the public hospital. The voluntary contributor has always been willing to provide certain additional forms of service in which he had his own special interest, while the taxpayer, through his political representatives, considered it his duty in most instances to provide routine care only.

There seems to be enough food for thought about hospital costs during hard times to justify a careful review of the subject by national and local hospital organizations, as well as by individual administrators for their own hospitals.

E. M. Bluestone, M.D., New York.
Director, Montefiore Hospital.

A CASE OF THOMSEN'S DISEASE

To the Editor: — The recent comprehensive review of the literature of myotonia congenita by Jelliffe and Ziegler (The Journal, February 25, p. 555) prompts me to describe a case, seen recently:

J. K., a white youth, aged 19, Roman Catholic, born in Syracuse, N. Y., whose parents and a sister, aged 21, are without neurologic or muscular anomalies, and whose family as far as ascertainable is similarly free from any relevant abnormalities, had a tonsillectomy at 7 and was believed to have had some evidence of muscular "stiffness" from infancy. It was recalled definitely that from the age of 4 he tended to stumble and to fall easily. As far back as he can remember he has stumbled if pushed even lightly, or if startled. He has always tended to lose his balance easily. About thirty seconds before he arises from a sitting or lying posture his muscles remain "stiffened." He has to start to leave a street car about two blocks before his destination. If he leans backward, he cannot regain his equilibrium, and he falls to the ground "in one piece." Whenever he sneezes, his eyelids cannot be opened for about thirty seconds. The same interval elapses before he can open his tightly clenched hands.

Cold weather and fatigue accentuate his difficulty in relaxing his muscles. He tires easily and his speech is slow, low and monotonous. Emotional expression is very difficult. All muscle groups seem involved. The general physical and neurologic examination is negative, except for the muscular handicap. There is the typical myotonic reaction in all muscle groups. He has a marked pseudohypertrophy of the muscles of the thighs and calves. The blood pressure is 120 systolic, 80 diastolic. The blood Wassermann and routine urine examinations are negative.

His intelligence is normal: he finished the second year of high school at 16 and has been working steadily since as an errand boy in a newspaper office. He engages in the usual physical activities of a boy of his age with a fair degree of efficiency if he is extremely careful. His outlook on life thus far has been normal, except that he realizes that he must lag a little behind in the affairs of his world. His condition apparently in recent years has been stationary.

Louis J. Bragman, M.D., Syracuse, N. Y.

HOSPITALIZATION AND THE COST OF MEDICAL CARE

To the Editor:—Two features of the high cost of medical care have been too much neglected in past discussions: unnecessary hospitalization of patients by physicians, and unduly high cost of hospital construction.

During the past two decades there has been a growing tendency to send patients into hospitals for study and treatment, usually involving extensive chemical and physical laboratory aids which have added much to the already high hospital costs. With diabetes, in particular, the cost of medical care has been rendered excessive by this unnecessary use of hospitals and laboratories. I say unnecessary here because I am convinced that, with a due regard for the patient's purse and a willingness to give a maximum of personal service, this and many other conditions could be handled largely at home or in the office as effectively as in the hospital. Physicians may have felt a responsibility toward financial support of our present expensive hospital set-up. Such financial burden, however, should be thrust on the patient only when necessary for his own good, and then only to a minimal extent. This brings up the next question, which concerns the cost of necessary hospital care.

Recognizing hospitals as essential aids in giving proper medical care, let us look into the expenditures involved and whether they are necessary and appropriately balanced with the cost of other vital activities of the patient. Increasing splendor and fineness in detail of construction and equipment has been the rule in hospitals of recent years. Costs per bed have kept mounting, until now $4,000 represents close to the minimum, and from there the range is upward to $10,000 a bed. What proportion of patients who use these beds are accustomed to any such cost in their home surroundings? In most countries the average family lives in a home with a value approximately double the annual family income. With the middle class of patients this would mean an income of from $2,000 to $5,000 and a home valued at $4,000 to $10,000, or, for a family of five, a home value of from $800 to $2,000 per bed. And then, when we ask these people to take a hospital bed, we offer them only beds five times as expensive as experience has shown they can afford at home. Is it any wonder most people regard hospitalization as a financial calamity?

People over the country, in the face of the present depression, are beginning to scan expenditures much more closely, and it is being realized that the same error has been made in our school buildings as is pointed out for the hospitals. There will soon be a realization of the utter fallacy of expenditures along these lines so out of proportion with what people can afford at home; for, in the end, the people must pay the bill. I believe the medical profession could best help out in the present problem of medical costs by seeing that hospital construction and upkeep costs be reduced to somewhere near the financial level of the people to be treated, and then by imposing this burden on patients only when necessary for the patients' good. This will involve efforts toward more treatment in the

home, but perhaps we might thus retrace in part the path back to the old-time family physician.

With the likelihood of construction of numerous small community hospitals over the country in the near future, it is essential that the principles of cost set forth should be kept to the fore. By making use of construction materials and methods now available, hospitals fully adequate for every needful purpose can be built and equipped for $2,500 or less per bed, so insulated from external changes in environment as to have low heating and upkeep costs. With such economy in construction, it should be possible to air-condition every hospital completely, particularly to avoid the deleterious effects of severe summer heat waves. Construction architects are now prepared to plan such adequate, completely equipped, air-conditioned, acoustically treated hospitals for around $2,500 per bed. Is it not the duty of the medical profession to see that all future hospital or clinic construction be carried out along these new lines, so as to relieve the public of this one unnecessarily large item in the cost of medical care?

C. A. MILLS, M.D., Cincinnati.

"DENTAL EDUCATION IN THE UNITED STATES"

To the Editor:—In THE JOURNAL, April 23, 1932, page 1498 appeared a review of a pamphlet entitled Some Phases of Dental Education in the United States, by Alfred Owre, dean of the Columbia University School of Dental and Oral Surgery. The pamphlet is notable as one of the most inaccurate and misleading publications ever issued in the name of dentistry. Your reviewer "fell for" its most unjust implications. It is untrue, for example, that obstacles have been thrown in the way of any dental educational program at Columbia, and the Dental Educational Council has been squarely behind the movement that eliminated all the proprietary dental schools. Several are still independent, like Jefferson Medical College.

I called attention, in the issue of the *Journal of Dental Research* for October, 1932, to some of Dr. Owre's misrepresentations, in the pamphlet, of the Carnegie Foundation's study of dental education. The president of the Dental Educational Council, Dr. H. L. Banzhaf of Marquette University, in an address published in the issue of the *Journal of Dental Research* for December, 1932, referred to some of Dr. Owre's misrepresentations of the Dental Educational Council.

Dr. Owre was the only dentist in the group of seven sponsors of the footnote, on pages 112-113 of the majority report of the Committee on the Costs of Medical Care, which misrepresents conditions in dental practice, and which was corrected on pages 81-98 of the February issue of the *Journal of Dental Research.*

WILLIAM J. GIES, PH.D., New York.
Editor, *Journal of Dental Research.*

"CYSTINE NEPHROLITHIASIS"

To the Editor:—In THE JOURNAL, Dec. 24, 1932, appeared an interesting article entitled "Cystine Nephrolithiasis," by George H. Ewell, M.D. Attention should, however, be directed to the following misstatements in Dr. Ewell's communication:

1. "Chemically, cystine is a complex organic compound and belongs in the amino-acid group, the only one that contains sulphur, the latter being about 25 per cent of its content."

2. "Feeding experiments on dogs and rats have shown that it [cystine] is an essential amino-acid necessary for growth and maintenance of body weight, and no other substance can replace it."

3. "The chemical formula of cystine is $[S.CH_2CH(NH_2).CCOOH]_2$ and by oxidation is broken up into two molecules of cystinic acid; these substances are stored in the body tissue and play a great rôle in oxidation processes."

Cystine is not the only sulphur-containing amino-acid found in proteins; methionine also contains sulphur. Furthermore, the latter amino-acid is apparently capable under certain experimental conditions of replacing cystine in the diet (Jackson, R. W., and Block, R. J.: *Science* **74**:414 [Oct. 23] 1931; *J. Biol. Chem.* **98**:465 [Nov.] 1932. Weichselbaum, T. E.; Weichselbaum, M. B., and Stewart, C. P.: *Nature* **129**:795, 1932).

The chemical formula for cystine is $(—S.CH_2.CH(NH_2).COOH)_2$. In vitro oxidation of cystine yields two molecules of cysteic acid, sometimes called cysteinic acid in the older literature. We are not aware of any experimental evidence supporting the statement that cysteic acid plays "a great rôle in oxidation processes" in the body tissue.

Again, Dr. Ewell writes: "In hair and wool the content [of cystine] varies between 5 and 10 per cent." And also, "All proteins contain some cystine in variable amounts."

The cystine content of wool and hair keratins stated as being within the range of 5 to 10 per cent is none too high. Several investigators (for example, Wilson, R. H., and Lewis, H. B.: *J. Biol. Chem.* **73**:543 [June] 1927. Rimington, C.: *Biochem. J.* **23**:41, 1929) have reported analyses indicating figures ranging from 10 to 20 per cent.

Finally, in view of the limited evidence as yet available, the conclusion that "all proteins contain some cystine" seems somewhat hazardous.

ABRAHAM WHITE, PH.D.,
RICHARD W. JACKSON, PH.D.,
New Haven, Conn.
Laboratory of Physiological Chemistry, Yale University.

[The foregoing letter was referred to Dr. Ewell, who replies:]

To the Editor:—The writers' exceptions are well taken. These discrepancies had, however, been previously called to my attention by Dr. Harry D. Baernstein of the University of Wisconsin Medical School.

Concerning the amino-acid methionine, several of the standard textbooks of physiologic chemistry, unless revised in very recent years, contain little if any reference to this substance. The 1930 edition of Mathews' Physiological Chemistry does not list it in the tabulation of percentage of amino-acids isolated from various proteins, page 136. That this substance may play an important part in cystinuria remains to be determined, and Dr. H. B. Lewis of the University of Michigan has been kind enough to suggest that I employ methionine in some experimental manner in the further studies that I am pursuing. The incorrect formula in my paper should not, of course, have been overlooked in the proofreading.

Concerning the question as to whether or not methionine may replace cystine in the diet, the article by Jackson and Block appeared in November, whereas my paper was presented in May at the annual session and obviously no reference could have been made to this article. The same is true of the article of Weichselbaum et al.

A hurried review of the article of Jackson and Block would indicate that methionine apparently is capable, under certain experimental conditions, of replacing cystine in the diet and then only in part, if my interpretation of the article is correct; at the present time, from the standpoint of a clinician, it would seem that cystine is still an essential amino-acid necessary for growth and maintenance of body weight.

Since the publication of my paper, Dr. Baernstein has succeeded in demonstrating cystine in the urine of the mother of the boy J. H., referred to as case 2 in my article. In the

article I stated that specimens of urine from both the father and mother did not reveal cystine. I believe this observation is one of distinct importance in view of the familial tendency shown by the disease.

G. H. EWELL, M.D., Madison, Wis.

STYLET FOR URETERAL CATHETERS AND PLUGS FOR URETHRAL CATHETERS

To the Editor:—For over twenty years, during which time I have watched catheters buckle for others and heard the operators begging for specially made stylets, I have gone on quietly with my own unpatented secret. I advise employment of steel guitar strings, unwrapped, and known as the second treble string, or B. They cost 15 cents. They may be cut off at the proper length. Care in cleansing, drying and oiling will keep them for months. This will serve as a wonderful splint to male ureteral catheters and greatly facilitate their introduction.

I recommend as a catheter plug a golf tee of one-half inch top graduated down for one and five-eighths inches. The tees can be boiled, are obtainable in almost any color—though red seems appropriate—and will plug Pezzer catheters to number 36 French down to the smallest one any transurethral resectionist may desire to insert.

The depression price is 10 cents per dozen, but a lower rate is to be had in gross lots.

GIDEON TIMBERLAKE, M.D., St. Petersburg, Fla.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FEVER OF UNKNOWN ORIGIN IN CHILDREN

To the Editor:—In March, a girl, aged 6, complained of a sore throat and had a temperature up to 100 F. for about one week. One month later she had a sharp pain in the right thigh and commenced to have a slight fever, ranging from 98.8 in the morning to 100 or slightly over at night. This continued for a few weeks and a slight mitral murmur made its appearance. Tonsillectomy was done at this time and the child was put to bed for about three months, but the elevation of temperature continued. At that time the child was allowed up with little walking and no exercise. In spite of this restraint the temperature at night still approaches 100, and any excitement will send it a bit over that. The child is happy and has no symptoms. She weighs 62 pounds (28 Kg.) and shows no evidence of anemia. Her pulse has remained around 100, with slight increases with activity. I believe the child should be in bed but have found others holding that the slight amount of activity of the child will not affect her. The murmur does not seem to be any worse than it was at the beginning. There is no cyanosis, shortness of breath or cardiac enlargement. What is your opinion in regard to this case? Have you any suggestions? Kindly omit name. M.D., New York.

ANSWER.—A slight continuous elevation of temperature may not infrequently be encountered in infants and young children, and the correct interpretation of this temperature elevation may be puzzling, as in the case in question.

The first step to be taken when such a chronic elevation of temperature as habitual hyperthermia is encountered is to rule out all possible foci of infection. Among such foci one should not overlook occult tuberculosis, chronic catarrhs or inflammation of the nasopharynx and gums, ear infection, sinusitis, pyelitis, sepsis, lymphogranuloma and chronic endocarditis. A postinfectious hyperthermia following scarlet fever, measles, grip and pneumonia may last for weeks or months. In the case in question, a slight cardiac murmur with no cardiac enlargement is the only physical sign mentioned that might lead to investigation of a possible focus of infection. Functional murmurs are so common in children of this age that no weight should be placed on the finding of the murmur alone, without other signs, such as cardiac enlargement, fatigue or dyspnea.

If all other foci could be excluded through a careful physical examination, if the general deportment and reactions of the child were normal, and if such laboratory aids as a complete hematologic examination, urine and stool tests, tuberculin reaction, and roentgen examination of the nasal sinuses, lung fields and heart diameters were all found to be within normal range, one would be led to exclude a hyperthermia of infectious or postinfectious origin.

However, there are other causes for habitual hyperthermia in infants and young children: It is known that constant overfeeding may cause a hyperthermia due to the specific dynamic action of excessive protein feeding. Such external factors as hot weather, increased humidity and warm clothing, or a warm bath may cause a rise in body temperature, and in infancy excessive thirst or excessive intake of salt or protein may produce fever.

As the result of muscular activity, especially of the lower limbs, there may be a rise in the rectal temperature from local heat liberated by muscular work. Further, children of a vasolabile constitution, as well as neuropathic and hyperthyroid children, may show hyperthermia.

The temperature curve and the comparison of axillary with rectal temperatures may often aid in differentiating elevations in temperature due to infection from those of other causes, such as activity and constitution. Temperature due to infection would be general, while in noninfectious hyperthermias the axillary temperature tends to be normal and the rectal temperature elevated. An hour of complete rest before the temperature is taken will exclude fever due to muscular activity. Neuropathic children often show greater elevations of temperature after exercise than do normal children.

If the child in the case referred to can be shown to be free of infection, no restrictions as to her activity will be necessary.

EFFECTS OF BEER DRINKING ON BODY WEIGHT

To the Editor:—A recent newspaper item warned women that daily consumption of beer is fattening. Will you kindly advise me whether, in your opinion, there is any scientific basis for this statement? M. P.

ANSWER.—Obviously, if beer contains 3.2 per cent of alcohol having a calory value of 7 per gram, and 10 per cent of nitrogenous and carbohydrate extractive materials having a calory value approximating that of sugars, protein and dextrin, i. e., 4 per gram—and assuming that these "extractive materials" present in beer are utilized in metabolism—a quart of beer will have a value of at least 500 calories. This is five sixths of the calory value of a quart of milk. One need only ask oneself what the effect of adding 500 calories a day to the diet of a sedentary person already ingesting a ration of liberal food-fuel value would be, to answer the question. It is impossible to answer the inquiry more intelligently without knowing what is meant by "the daily consumption of beer," and whether beer is considered as replacing or supplementing any part of the daily food allowance. Experience shows that usually it is a supplement to an already adequate ration.

USE OF ANTIPNEUMOCOCCIC SERUM

To the Editor:—On all sides one sees antipneumococcic serum, Felton, type I, being advertised by makers of pharmaceuticals. It is difficult to determine the type of pneumococcus in a given case. I know of no method except the mouse method, which takes a laboratory and twenty-four hours of time and leaves us country doctors with no easy way of determining type. Is it harmless to use this serum in all early pneumonias regardless of type? Is there any other better way of typing? In fact, what seems to be the best procedure when pneumonia of unknown type occurs in private homes in smaller towns? Should one use this serum? CARROLL H. BROWNING, M.D., Painesville, Ohio.

ANSWER.—The mouse method of typing pneumonia sputum is the most accurate, but where this method is not available, the Krumwiede method is easy to perform, fairly reliable, and, if positive, gives a satisfactory reading within one hour after the test is set up. In a statistical study of type II pneumonia, Cecil and Plummer found that 43 per cent of cases could be accurately typed by the Krumwiede method in less than one hour. Presumably this figure would hold for other types as well. Heffron and Varley have recently published an article on methods of pneumococcus typing and report good results with the Krumwiede method. The Sabin method of typing is also rapid and accurate but necessitates the use of a mouse. Results are usually obtained within five hours.

The question of whether or not antipneumococcic serum should be employed in cases in which the type is not known is still a subject for debate. Some authorities advise the prompt administration of serum in typical lobar pneumonia before the type has been determined. Others consider it better practice to withhold serum until the type has been discovered and employ it only in type I, and possibly type II, cases. All agree that serum is useless in type III and group IV infections. Perhaps it is safer not to lay down any hard and fast rule on this

question. In severe infections, with all the signs of toxemia present, serum would be indicated without waiting for the type. In mild infections the practitioner would certainly be justified in following a more conservative course.

The methods mentioned are explained in the following articles:

Krumwiede, Charles, Jr., and Noble, W. C.: A Rapid Method for the Production of Precipitin Antigen from Bacteria: An Attempt to Apply It to the Determination of the Type of Pneumococcus in Sputum, *J. Immunol.* **3**: 1 (Jan.) 1918.

Cecil, R. L., and Plummer, Norman: Pneumococcus Type II Pneumonia: A Clinical and Bacteriologic Study of One Thousand Cases, with Especial Reference to Serum Therapy, THE JOURNAL, March 5, 1932, p. 779.

Heffron, Roderick, and Varley, F. M.: A Study of Lobar Pneumonia in Massachusetts: Methods and Results of Pneumococcus Type Determination, *Am. J. Pub. Health* **22**: 1230 (Dec.) 1932.

Sabin, A. B.: The Microscopic Agglutination Test in Pneumonia: Its Application to Rapid Typing and Control of Serum Therapy, *J. Infect. Dis.* **46**: 469 (June) 1930.

MILD SILVER PROTEIN

To the Editor:—For my information, will you kindly compare the therapeutic values of the following mild silver protein preparations: Argyrol, A. C. Barnes Company; Solargentum, Squibb; Silver Nucleinate, Merck. Can the three be differentiated chemically or physically? I am trying to interest some of our local physicians in prescribing the above under its U. S. P. title "Argento-Proteinum Mite," and the requested information will be of considerable assistance.

M. W. DOYLE, JR., Torrington, Conn.

ANSWER.—Four brands of mild silver protein, U. S. P., are listed in New and Nonofficial Remedies:

Argyn—Abbott Laboratories.
Cargentos—Sharp & Dohme.
Silvol—Parke, Davis & Co.
Solargentum—E. R. Squibb & Sons.

Silver Nucleinate-Merck is a brand of mild silver protein, U. S. P. It has not been submitted to the Council on Pharmacy and Chemistry for acceptance. Several years ago the Council and the Laboratory pointed out that the so-called silver nucleinates were not nucleinates.

Argyrol conforms to the U. S. P. X tests for mild silver protein. Formerly it was accepted and described in New and Nonofficial Remedies, but it was omitted in 1928 because of nonconformance with the rules of the Council on Pharmacy and Chemistry (THE JOURNAL, March 17, 1928, p. 849).

It may be assumed that all six of the substances conform to the tests for mild silver protein, U. S. P. X. This does not mean that the substances are identical, because they are made from different protein materials. It does mean, however, that these substances in solution have essentially the same concentration of ionized silver and the same amount of nonionized silver. Therapeutically, they act similarly.

Pilcher and Sollmann point out (*J. Lab. & Clin. Med.* **8**:301 [Feb.] 1923) that the differences between the different samples of the same brand are as great as or greater than the differences between the different brands with the substances they tested. The substances cannot be differentiated by the distinctive yeast test or by quantitative determinations of silver, but they can be differentiated by their physical appearance in the dry state. Other tests more or less vague have been worked out in some cases to differentiate between solutions of the various brands of mild silver protein.

EFFECTS OF SPLENECTOMY

To the Editor:—A patient has had his spleen removed after a blow that ruptured it. Under these circumstances, will the life of the patient be shortened? Will it impair his ability to engage in active manual labor? What is the relation generally between the function of the spleen and mechanical work? Please omit name.

M.D.

ANSWER.—If the patient had a normal spleen at the time of rupture and there was then no evidence of blood dyscrasia, the cases reported in the literature and the experience of physicians and surgeons indicate that length of life would not be shortened nor the ability to engage in active manual labor impaired. If some blood dyscrasia or some disease associated with splenomegaly was present at the time of the injury, the patient's subsequent course would be that of the disease as it might be modified by splenectomy.

Important functions of the normal spleen are those of blood destruction and of temporary compensation for sudden loss of blood. The function of blood destruction ordinarily is not affected by splenectomy, because other portions of the reticuloendothelial system are likewise active in blood destruction. Theoretically, after the removal of a normal spleen, a favorable temporary reaction following sudden loss of blood would be less prompt, as the spleen acts as a reservoir for red cells and extrudes them into the circulation when they are needed. From a practical standpoint, this loss of function could be quickly compensated for by transfusion.

Nothing is definitely known concerning the relationship of the spleen to mechanical work. The ancient Greeks believed that splenectomized runners were able to develop greater speed, and experimental work has been published which indicates that the speed of animals is greater after splenectomy; the proper evaluation of these statements, however, is impossible at the present time. There seems to be little relationship between the functions of the spleen and the ability to do mechanical work.

CRITICISM OF PRESCRIPTION FOR COUGH

To the Editor:—I have been experimenting with a formula to be used to allay the irritating dry cough that has become so prevalent as a complication of infections of the upper respiratory tract and wish you would give me your opinion as to the wisdom of the following prescription to be used in these cases:

Thymol	0.025%
Ephedrine hydrochloride	0.05%
Potassium guaiacolsulphonate	1.00%
Ammonium chloride	3.00%
Menthol	0.04%
Sugar	60.00%
Water	36.00%

Please omit name.

M.D., Minnesota.

ANSWER.—Assuming that the dose of the solution is a teaspoonful, it becomes evident that the dose of the ephedrine is too small to be of much value, unless this prescription is intended for a child. It is also clear that no effect could be expected from the minute amount of thymol, excepting the introduction of its unpleasant taste. The dose of the ammonium chloride, probably the essential ingredient of this prescription, might be increased, at least doubled; and it had better be dissolved in syrup instead of troubling the pharmacist to make the syrup extemporaneously by dissolving the sugar in the water. The menthol, which would probably best be dissolved in a few drops of alcohol before incorporating it in the aqueous fluid, would serve as a flavoring and, by its benumbing quality, disguising agent for the ammonium chloride. The value of the potassium guaiacolsulphonate as an expectorant is still *sub judice*. It probably does not represent the expectorant effect of guaiacol and creosote. If it did, it probably would not be rational to combine the ammonium chloride, which is intended to increase the bulk and fluidity expectoration, with the aromatic expectorant, which is believed to lessen the bulk of expectoration, possibly making it more tenacious and therefore contraindicated in just those cases in which ammonium chloride would be indicated.

TOXIC ARTHRITIS IN ALCOHOLIC INDIVIDUAL

To the Editor:—A woman, aged 34, married, without children but with one toxic pregnancy at 24, gave a history of alcoholism for the past ten years. The Wassermann reaction, blood, urine sedimentation test, basal metabolism, blood counts and culture were all negative. The physical, mental and gynecologic examinations were negative. She went to bed feeling well and awoke the next morning with a marked swelling and painful shoulder and left arm. The swelling and pain gradually left the arm and went to the forearm and finally to the fingers. At that time she was treated for possible erysipelas, owing to the presence of a slight abrasion and a few blebs. A possibility of a nerve pressure paralysis was also kept in mind. She was treated by all known means of medication, electrotherapy, hydrotherapy, baking and massage. At the present time her index, middle and ring fingers are slightly swollen, painful and tender and she holds things fairly well, yet her grasp is still weak. I have convinced myself that she is suffering from a polyneuritis (alcoholic) and have given her foreign protein as well as vaccine injections. Roentgenograms are negative. 1. Will she regain her normal grasp in these fingers in time to come? 2. Will the partial paralysis be permanent? 3. What should I tell the patient concerning the prognosis? 4. Should I try alcoholic injections into the ulnar and radial nerves? The patient is back at work and cannot afford to stay away any longer, as she was away for three months. 5. Kindly advise as to further treatment.

M.D., New York.

ANSWER.—This case may be one of toxic arthritis occurring in an alcoholic individual. The most important factors in this case would be the regaining of tonicity of muscle. In answer to the specific questions,

1. She should regain fairly normal grasp in these fingers eventually. Complete return may occur, provided the original cause is eliminated and contractures are prevented or corrected.

2. The partial paralysis should not be permanent.

3. The prognosis, while guarded, should be good if the toxic cause is completely eliminated and if treatment is adequate.

4. No. Alcoholic injections are contraindicated because of the danger of superimposing additional toxic effects.

5. In addition, absolute withdrawal of alcohol in any form, even in medication, is indicated. The extremities should be splinted in order to obtain rest and to prevent deformities or

contraction. If the patient is not overweight, a diet containing increased quantities of fats such as milk, eggs and butter is advisable. Strychnine should be of value. Electrical stimulation should be tried and, unless it produces much pain, would probably be beneficial. Radiant heat, gentle massage and muscular movements, both active and passive, should be started as soon as the acute pain and swelling subside. They should be continued until the end-result is obtained.

HAIRY TONGUE

To the Editor:—A farmer, aged 63, consulted me for information concerning a localized growth of fine hairs, about 0.5 cm. long, on the dorsum of the tongue. The growth at present is the size of a fifty-cent piece (about 30 mm. across), painless, nonulcerating, not infected and not physically disturbing to the patient. There is no difficulty in swallowing foods of any kind. The growth has been noticed for the last three months and is receding in size. About one month ago the mass of hair extended from the posterior portion of the tongue along the midline to the very free margin. The hairs are easily removed with a tongue depressor. Occasionally the mass of hair becomes adherent to the palate, but it is easily separated by motions of deglutition. There is no history of trauma or burn. Can you give me any data on this case?

S. M. LAZOW, M.D., Matawan, N. J.

ANSWER.—Hairy tongue is a rare anomaly, thought by Heidingsfeld, who studied it, to be hereditary in origin. He also thought that there is a pseudo-black tongue that is caused by local irritation. All forms are innocent, most cases clearing spontaneously after a time, as the one described seems to be doing. Any mild antiseptic application may be used. Five per cent solution of gentian violet has been successful in some cases. This may be painted on once a day after drying the surface as well as possible. An article by Dr. M. L. Heidingsfeld, entitled Hairy or Black Tongue, appeared in THE JOURNAL, Dec. 17, 1910, p. 2117.

MARRIAGE IN CRETINISM

To the Editor:—What advice regarding marriage should be given to a 19 year old girl who is a cretin of the congenital sporadic type? She enjoys good health, except that she takes cold easily and has frequent attacks of cystitis. Her height is about 5 feet (152 cm.) and she weighs 120 pounds (54 Kg.). She is maintained on 4 grains (0.25 Gm.) of desiccated thyroid daily. She is completing her last year in high school and is ordinarily an average pupil. There is no history of cretinism in the family.

M.D., Ohio.

ANSWER.—Cretinism does not seem to be transmitted to subsequent generations, and the few references in the literature to this subject would seem to confirm the foregoing statement. Goitrous families have a larger proportion of cretinoid children than normal families.

During pregnancy, this patient might need less thyroid when the fetal thyroid begins to assume its function. Occasionally it supplies the mother.

In this particular case, marriage need not be forbidden and probably pregnancy should be allowed.

LATE ULNAR NERVE PALSY

To the Editor:—I have a patient, aged 55, who seventeen years ago suffered a compound comminuted fracture by falling on his right elbow. Three months ago, while mowing a lawn, he felt a sudden pain in the upper third of the right forearm in the middle of the volar surface, which lasted about one hour. Occasionally he has pain in the same region. Two months ago he began noticing numbness of his right little finger and an awkwardness in using his right hand. The changes noted are essentially restricted to the right forearm and consist of a sensory loss to pain and touch over the little finger and ulnar aspect of the ring finger extending up to the wrist. Motor loss consists of an inability to flex the distal phalangeal joint and the proximal phalangeal joint of the little and ring fingers, loss of adduction in all the fingers, and loss of abduction in all the fingers except the little finger. Adduction of the thumb and wrist is maintained. There is good supination, pronation and flexion of the forearm but an inability to extend it beyond 160 degrees. On pressure over the ulnar nerve at the elbow between the external condyle and the olecranon, pain is felt. Has this any significance? Roentgen examination reveals the old fracture of the upper third of the radius and ulna, including the olecranon, but there is no evidence of callous formation around the medial condyle. Roentgen examination of the ribs and spine is negative. The other hand is normal. The condition is progressing. Is it most probable that it is compression of the ulnar nerve due to the injury of seventeen years ago? What other examinations should be done before this diagnosis can be made? What else would cause these symptoms and signs? Please omit name and address.

M.D., Montana.

ANSWER.—The history and symptoms detailed are typical of late ulnar nerve palsy, which not infrequently develops in adult life following a fracture in the region of the elbow joint sustained years before. The nerve palsy is due to gradual stretching of the ulnar nerve as it passes through the olecranon groove over the posteromedial surface of the elbow joint. The stretching is due to the fact that, as the angle increases, the distance through which the nerve passes is increased, just as a man's coat sleeve is stretched over the back of the arm when he flexes the arm at the elbow.

The treatment of the condition is careful transposition of the ulnar nerve from behind the olecranon groove to the front of the elbow before nerve degeneration takes place. Such transposition shortens the course over which the ulnar nerve travels and so relieves the tension. A well written paper on this subject by Edwin M. Miller appeared in *Surgery, Gynecology and Obstetrics,* in January, 1924, volume 38, page 37.

LIVER FUNCTION TESTS IN PREGNANCY

To the Editor:—According to the directions for the Rosenthal modification of the bromsulphalein test of liver function, the amount of dye injected intravenously is 5 mg. for each kilogram of body weight. In other words, the dose varies with the weight of the individual. I should like to know whether this dose calculation holds true for the female in the late months of pregnancy. Please omit name.

M.D., New York.

ANSWER.—The calculation of the amount of bromsulphalein retained in the blood from determinations done on a small sample of blood serum depends on the assumption that all the dye that has not been taken up by the liver is more or less equally distributed throughout the blood and tissue fluids. The color standards are prepared in such a manner that if no dye whatever was taken up by the liver and the total dye injected was equally distributed throughout the body fluids, the reading from the blood serum sample would be 100 per cent. It is obvious that the amount of dye present in any given sample of blood serum depends on the amount of dye injected and the total amount of fluid in which the dye is distributed. In order to be able to use the same set of color standards for all sizes of patients, it is therefore necessary to vary the amount of dye injected according to the bulk of the individual.

In the absence of evidence that the placenta in a pregnant woman prevents the passage of dye into the fetus and related structures, the latter must be considered as integral parts of the individual as far as this test is concerned. The usual dose calculation should therefore also be applied to pregnant women. J. M. Freiheit (*Am. J. Obst. & Gynec.* **23**:797 [June] 1932) reports normal readings with the bromsulphalein test in uncomplicated pregnancy when the dose of dye was calculated on the total weight of the individual.

"PREDETERMINATION OF SEX"

To the Editor:—I am in accord with the recent discussion in Queries and Minor Notes (THE JOURNAL, February 18, p. 519) as far as concerns the skepticism expressed as to the predetermination of sex by alkalization or acidification. But the statement that "the extra chromosome theory of the production of sex seems to have the best scientific foundation" is open to comment—and more skepticism. Sex is a physiologic condition. Prof. John H. Schaffner of the Ohio State University made an interesting experiment with Arisaema triphyllum, jack-in-the-pulpit. This plant is dioecius, unisexual, with two kinds of flowers on separate plants. He selected a specimen of twins, however, which are occasionally found, and, as is invariably the case, both were female; identical twins, of course. By trimming the leaves and otherwise starving it he produced next year from the same plant a male and a female flower. He had changed the sex of one of them. Now will some cocksure geneticist kindly step forward and explain how it comes that sex was changed without any possible chance of chromosomes having a hand in the matter? The theory falls. Sex is not determined by chromosomes.

Observe a supersaturated solution of crystalline material. A foreign substance is introduced. Out of shapelessness and chaos, a semblance of order is established instantly. Now, sex is one of the conditions of life—a physiologic condition. Predetermination of sex is a vast subject. It involves knowledge which at present is not thoroughly understood by any one. Of one thing, however, we can be certain; anything we may do in the early stages of life is bound to be in the nature of clumsy, bungling experiment.

R. D. BOOK, M.D., Corning, Ohio.

"UNILATERAL NASAL DISCHARGE"

To the Editor:—With regard to the discussion of unilateral nasal discharge (THE JOURNAL, March 4, p. 687), every rhinologist would agree that the first thing to think of in this type of case is a foreign body. However, so many foreign bodies are found in the nose which are not roentgen opaque that I fear the sentence "Roentgenograms of the nasal cavities should be made carefully in the effort to decide definitely whether a foreign body of any sort is present which produces a constant irritation" may be interpreted to mean that the court of last resort in determining the presence of a foreign body in the nose is a roentgenogram.

It is my opinion that the person who answered this query would have done well had he advocated careful inspection of the interior of the nose both before and after the use of 1:1,000 epinephrine solution. It has been my experience that this is a much more satisfactory final method of search for foreign bodies in the nose than is the roentgenogram.

G. HENRY MUNDT, M.D., Chicago.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Milwaukee, June 12. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: The *general oral, clinical and pathological* examination will be held in Milwaukee, June 13. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Milwaukee, June 12. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARKANSAS: *Basic Science.* Little Rock, May 1. Sec., Mr. Louis E. Gebauer, 1002 Donoghey Bldg., Little Rock. *Regular.* Little Rock, May 9-10. Sec., Dr. Sam J. Allbright, Box 54, Searcy. *Eclectic.* Little Rock, May 9. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith. *Homeopathic.* Little Rock, May 9. Sec., Dr. Allison A. Pringle, Eureka Springs.

CALIFORNIA: *Reciprocity.* Los Angeles, April 19. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

MINNESOTA: Minneapolis, April 18-20. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* The examinations will be held at centers where there are five or more candidates, May 8-10, June 26-28, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: *Basic Science.* Omaha, May 2-3. Dir., Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 1. Sec., Dr. Edward E. Hamer, Carson City.

WISCONSIN: *Basic Science.* Milwaukee, June 17. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Regular.* Milwaukee, June 27-29. Sec., Dr. Robert E. Flynn, 401 Main St., La Crosse.

New Jersey October Report

Dr. James J. McGuire, secretary, State Board of Medical Examiners of New Jersey, reports the written examination held in Trenton, Oct. 18-19, 1932. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Thirty-four candidates were examined, 29 of whom passed and 5 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine	(1930)	85.3, (1931)	79.5
George Washington University School of Med.	(1931)	83.4, 85.2,	88.1
Loyola University School of Medicine	(1932)	84.7, 85,	86
Northwestern University Medical School	(1932)		85.1
University of Louisville School of Medicine	(1931)		81.8
St. Louis University School of Medicine	(1931)		83.5
Columbia University College of Phys. and Surgs.	(1931)		83.6
Cornell University Medical College	(1931)	78.3,	85.3
Long Island College of Medicine	(1931)		86.5
New York Homeopathic Med. Coll. and Flower Hosp.	(1931)		85.1
University and Bellevue Hospital Medical College	(1931)		86.2
Hahnemann Medical College and Hosp. of Philadelphia	(1931)		88.2
Jefferson Medical College of Philadelphia	(1931)		89.2
Temple University School of Medicine	(1931)		81
University of Pennsylvania School of Medicine	(1931)		83.4
University of Wisconsin Medical School	(1931)		82.1
Dalhousie University Faculty of Medicine	(1932)	77.3,	83.5
McGill University Faculty of Medicine	(1931)		86.2
Lékařské Fakulty Karlovy University, Cze	(1931)		75.1
Regia Università di Napoli. Facoltà di Medicina e Chirurgia	(1928)	79.3,* (1932)	75.3*
Universytetu Jana Kazimierza Wydziału Lekarskiego, Poland	(1925)		75 *

College	FAILED	Year Grad.	Per Cent
Regia Università di Napoli. Facoltà di Medicina e Chirurgia	(1923)	69.2,* (1924)	60.6, 67.3
Regia Università di Palermo degli studi Facoltà di Medicina e Chirurgia	(1924)		71
Regia Università di Pavia degli studi Facoltà di Medicina e Chirurgia	(1921)		71.6

Dr. McGuire also reports 64 physicians licensed by endorsement from August 2 to December 14. The following colleges were represented:

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine	(1931)		Arkansas
University of Colorado School of Medicine	(1911)		New York
Georgetown University School of Medicine	(1931)		Maryland
Howard University College of Med.	(1930)	Georgia, (1931, 2)	Maryland
Tulane University of Louisiana School of Medicine	(1930)		Louisiana
Baltimore Medical College	(1909)		New York
University of Maryland School of Medicine and College of Physicians and Surgeons	(1930)		New York
Boston University School of Medicine	(1902)		Mass., (1930) New York
Harvard University Medical School	(1925)		New York
Tufts College Medical School	(1928)		N. B. M. Ex.
University of Michigan Medical School	(1931, 3)		Michigan
St. Louis University School of Medicine	(1930)		Missouri
Albany Medical College	(1914)		New York
Columbia University College of Physicians and Surgeons	(1928, 2),	(1931) New York, (1931)	N. B. M. Ex.
Cornell University Med. College	(1923),	(1929), (1930, 2)	New York, (1929) N. B. M. Ex.
Long Island College Hospital	(1929, 3)		New York
Long Island College of Medicine	(1931)		New York
New York Homeo. Med. Coll. and Flower Hosp.	(1931, 4)		New York
New York Medical College and Hospital for Women.	(1911)		New York
Syracuse University College of Medicine	(1931)		New York
University and Bellevue Hospital Medical College	(1927), (1928), (1930, 3),	(1931, 5) New York	
Western Reserve University School of Med.	(1924),	(1929)	Ohio
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1927)		Penna.
Jefferson Medical College of Philadelphia	(1928, 2)	(1928) Texas, (1929), (1930) New York	Penna.,
University of Pennsylvania School of Medicine	(1930)		N. B. M. Ex.
University of Pittsburgh School of Medicine	(1923)		Penna.
Meharry Medical College	(1931)		Tennessee
University of Tennessee College of Medicine	(1930, 2)		Tennessee
Vanderbilt University School of Medicine	(1931)		Tennessee
Medical College of Virginia	(1930)		N. Carolina
Queen's University Faculty of Medicine	(1918)		Penna.
Regia Università di Napoli. Facoltà di Medicina e Chirurgia	(1906)		Illinois

* Verification of graduation in process.

Arkansas November Report

Dr. Sam J. Allbright, secretary, State Medical Board of the Arkansas Medical Society, reports the written examination held in Little Rock, Nov. 8-9, 1932. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Five candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Physicians and Surgeons, Arkansas	(1911)		80
College of Medical Evangelists	(1919)		84.6
Meharry Medical College	(1932)		85.4
University of Tennessee College of Medicine	(1932)		84
Medical Faculty of Trinity University, Canada	(1903)		84.6

Dr. Allbright also reports 4 physicians licensed by reciprocity with other states from August 16 to November 19. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1912)		Illinois
Tufts College Medical School	(1907)		Mass.
Meharry Medical College	(1931)		Tennessee
University of Tennessee College of Medicine	(1930)		Tennessee

Tennessee September Examination

Dr. A. B. DeLoach, secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Memphis, Sept. 29-30, 1932. The examination covered 8 subjects and included 64 questions. An average of 75 per cent was required to pass. Twenty-six candidates were examined, all of whom passed. The following college was represented:

College	PASSED	Year Grad.	Number Passed
University of Tennessee College of Medicine	(1932, 26)		26

Texas November Report

Dr. T. J. Crowe, secretary, Texas State Board of Medical Examiners, reports the written examination held in Houston, Nov. 8-10, 1932. The examination covered 12 subjects. Three candidates were examined, all of whom passed. Nineteen candidates were licensed by reciprocity with other states. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
Northwestern University Medical School	(1930)		1
University of Texas School of Medicine	(1932)		1
Regia Università di Napoli. Facoltà di Medicina e Chirurgia	(1920)*		1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1927)		Arkansas
College of Medical Evangelists	(1917)		California
University of Colorado School of Medicine	(1932)		Colorado
Northwestern University Medical School	(1911)		Illinois, (1917) Oklahoma
Rush Medical College	(1924)		California
Hospital College of Medicine, Kentucky	(1907)		Kentucky
University of Louisville School of Medicine	(1928),	(1932)	Kentucky
Tulane University of Louisiana Department of Med.	(1893)		Mississippi
Tulane University of Louisiana School of Medicine	(1929)		Mississippi, Tennessee
Saginaw Valley Medical College, Michigan	(1900)		Michigan
University of Minnesota Medical School	(1925)		Minnesota
Barnes Medical College, Missouri	(1901)		Missouri
Meharry Medical College	(1931)		Tennessee
Vanderbilt University School of Medicine	(1926)		New York
Osteopaths			Missouri, 2

* Verification of graduation in process.

Book Notices

The British Pharmacopoeia 1932. Published under the direction of the General Council of Medical Education and Registration of the United Kingdom. Fabrikoid. Price, 21 s. Pp. 713. London: Constable and Co., Ltd., 1932.

The sixth British pharmacopeia was issued in the latter part of 1932, marking the end of an eighteen year period during which the pharmacopeia of 1914 had provided standards. As might be expected after the lapse of this long interval, the current revision has been quite extensive. In all, some 128 preparations have been added and about 350 omitted. Of the remainder, the composition of 36 preparations has been altered, and the strength of 13 modified. The names of 113 have been changed, some completely. Of the new preparations added, approximately 60 are official in U. S. P. X (1926) and about 30 are to be found in N. N. R. 1933; some do not occur in either. This is indicated in the following table:

Some Additional Preparations Appearing in B. P. 1932 Which Do Not Appear in U. S. P. X

B. P., 1932	*N. N. R., 1933*
Acriflavina	Acriflavine
Aethylenum	Ethylene
Amylocainae Hydrochloridum	Omitted from N. N. R., 1928 (Stovaine)
Antimonii et Sodii Tartras	—
Antitoxinum Welchicum	Perfringens Antitoxin
Carbonei Dioxidum	—
Ephedrinae Hydrochloridum	Ephedrine Hydrochloride
Ergotoxinae Ethanosulphonas	—
Extractum Hepatis Liquidum	Concentrated Liver Extract
Extractum Hepatis Siccum	Liver Extract
Extractum Malti cum Oleo Morrhuae	Malt Extract with Cod Liver Oil
Fluoresceinum Solubile	Fluorescein (sodium salt)
Injectio Bismuthi	—
Injectio Sodii Chloridi et Acaciae	—
Insulinum	Insulin
Iodophthaleinum	Tetraiodophthalein sodium
Laevulosum	—
Liquor Ergosterolis Irradiati	Viosterol in Oil
Liquor Iodi Simplex	—
Serum Antidysentericum (Shiga)	Antidysenteric Serum
Sulpharsphenamina	Sulpharsphenamine
Theophyllina et Sodii Acetas	Theophylline Sodio-Acetate
Thyroxinsodium	—
Totaquina [cinchona alkaloids]	—
Toxinum Diphthericum Calefactum	Schick Test Control
Toxinum Diphthericum Detoxicatum	Diphtheria Toxin-Antitoxin
	Diphtheria Toxoid
Toxinum Diphthericum Diagnosticum	Diphtheria Toxin for Schick Test
Urea	—
Vaccinum Typho-Paratyphosum (T. A. B.)	Typhoid-Paratyphoid Vaccine

As is the practice in the U. S. P., but contrary to the custom in the German pharmacopeia, the B. P. does not permit the use of protected or exclusive names and does not include any preparation the rights to the manufacture of which are restricted. In one case, that of ergotoxine ethanesulphonate, the manufacturer relinquished the patent rights in order that the product might be made official (Hampshire, C. H.: *Pharmaceut. J. & Pharmacist* **129**:414 [Nov. 12] 1932). This substance is now the standard for all ergot preparations B. P.; the Liquid Extract of Ergot contains the equivalent of 0.04 to 0.06 per cent w/v of Ergotoxine as determined by the dimethylaminobenzaldehyde color test, which replaces the biologic assay.

In the case of irradiated ergosterol in oil, the unit of antirachitic activity is defined "as the specific activity contained in such an amount of the Standard Preparation [kept in the National Institute for Medical Research] as the Medical Research Council may from time to time indicate as the quantity exactly equivalent to the unit accepted for international use." This is in keeping with the present trend of referring the activity of such substances to that of certain standard preparations. The Pharmacopeia Commission is to be commended on allowing for future developments in this particular case.

Changes have been made in the use of the Imperial (Apothecary's) System of weights and measures. The use of the terms "drachm" and "fluid drachm" has been discontinued, and it is recommended that Roman numerals and the symbols ʒ and ℥ be no longer used in the writing of prescriptions; all quantities are to be stated as grains (gr.), minims (m.), ounces (oz.) or fluid ounces (fl. oz.), and are to be expressed in Arabic numerals. Where the metric system is employed, the abbreviation G. for gram is recommended. The term milliliter ("mil.") is used in place of "cc." (U. S. P. X). A valuable addition to the B. P. is the explanatory ratio expressed in the directions for making solutions: where percentages are given, these are qualified as weight in weight (w/w), weight in volume (w/v) or volume in volume (v/v).

One of the changes which may involve some confusion is the rule that the term "tincture" shall not be used to designate simple solutions of chemical substances. Accordingly, "Tincture of Iodine" becomes "Solution of Iodine," although the former name is retained as a synonym.

It is surprising to note that Heroine Hydrochloride remains official in B. P. 1932, although it was omitted from U. S. P. X, its manufacture in or importation into the United States has been interdicted, and in 1931 there appeared the Expert Report of a Technical Committee on Heroine, of the League of Nations, in which it was stated, "we believe that heroine can be entirely dispensed with" (The Heroine Habit, *Lancet* **2**:55 [July 4] 1931).

It is notable also that arsphenamine does not appear in this volume; neoarsphenamine and sulpharsphenamine are, however, official.

Only a few of those preparations omitted from B. P. 1932 appear in U. S. P. X, and but one or two, such as guaiacol carbonate, are to be found in N. N. R. 1933. Those in U. S. P. X which are omitted from B. P. include acetanilid, aconitine, ammonium benzoate, ammonium bromide, bismuth subnitrate, caffeine citrate, cannabis, guaiacol carbonate, hydrastis, phosphorus, and ointment of yellow oxide of mercury.

In general, the B. P. 1932 has been enriched, by comparison with its immediate forebear, by the addition of more detailed descriptions of characters, tests and assays for the specific preparations. This is true also of the twenty-one appendixes, which include enumerations and discussions of test and standard materials and solutions; determinations of p_H, of freezing, melting, boiling and solidifying points and of viscosity; qualitative chemical reactions for B. P. substances; quantitative tests for lead and arsenic; limit tests for chlorides, sulphates and iron; tests for contaminating oils; saponification and iodine numbers of lipoid substances; determinations of alcohol content; alkaloidal assays; the antimony bichloride color test for cod liver oil, and biologic assays for antirachitic vitamin, serums, old tuberculin, insulin, posterior pituitary extract, digitalis, neoarsphenamine and sulpharsphenamine.

The British Pharmacopœia Commission and those who worked with this body in the preparation of this work are to be congratulated on the thorough, critical and far-sighted manner in which they accomplished a very difficult task.

Before the Fire Department of the City of New York, Board of Hazardous Trades. In the Matter of the Hearing Relative to Proposed Classification and Passage of Rules and Regulations in Connection with the Refrigerant Freon (Dichloro-Difluoro-Methane—Also Known as F-12 and K-12). E. T. Williams and John Kenlon in Rebuttal of Freon Manufacturers' Main Brief and Freon Manufacturers' Rebuttal Memorandum. To Present the Whole Truth as to the Hazards Attaching to the Use of Freon in Refrigerating Systems. E. T. Williams, Consulting Engineer, Servel, Inc., and John Kenlon, Consulting Engineer. Boards. Price, $2.50. Pp. 374, with illustrations. New York: Servel, Inc., [n. d.].

This legal document, little suited for general reading by the medical profession, challenges the interest of toxicologists, industrial toxicologists, chemists and hygienists. Prepared as a brief, this partisan publication, bristling with controversy, presents both sides of the dangers of freon (dichloro-difluoromethane) to firemen working in burning buildings. Since the advent of widespread household chemical refrigeration, firemen frequently have been endangered (particularly by multiple installations such as are found in some apartment buildings) by escaping refrigerator gases. Freon, much heralded as a nontoxic refrigerant, is charged with the responsibility for unusual danger to firemen, because of decomposition under heat, which liberates such toxic agents as hydrogen fluoride, hydrogen chloride, chlorine and phosgene. If this is established, the housewife possessing a leaky refrigerator (using freon) in a kitchen with open gas flames is also confronted by a hazard to

health. Records of many tests are presented, but the results are often held up to question. Apparently, many extravagant statements are made on all sides. The conviction grows that the real issue at stake in this hearing is commercial advantage, with rival companies as the real adversaries. It is significant that this brief has as its senior compiler a consulting engineer of a refrigerator company rival to another refrigerator company owning, or partly owning, freon. Quite engagingly, this record carries the reader through exhibits, briefs, rebuttals, arguments pro and con, toxicity tables, illustrations, and the customary typographic errors. As the contest approaches the exhaustion of words and figures, an eagerness is created to learn "who won"; but the book leaves the reader to be the judge and jury. The material presented neither proves nor disproves that freon, or its decomposition products, is practically and dangerously toxic.

Hospital Practice for Interns. The Council on Medical Education and Hospitals and the Council on Pharmacy and Chemistry. Fabrikoid. Price, 75 cents. Pp. 112. Chicago: American Medical Association, 1932.

This book, which can be carried in the pocket, is designed to give interns a ready source of the kind of information they need in prescribing rationally for patients in their charge. The body of the book contains a list of drugs selected from the Pharmacopeia and New and Nonofficial Remedies, arranged according to their effects, under headings such as circulatory stimulants, diuretics and sedatives. Preceding the section on materia medica are rules for interns, intended for adoption by hospital administrations with such changes as the individual hospital staff may find necessary. While brief, these rules seem to have covered all important points in the relation of the intern to the hospital and to patients. Sections on common emergencies and on laboratory data follow. These are perhaps rather brief, but the book itself is evidently not intended to be a compendium of facts so much as an immediate source of information, which can be amplified later when the emergency has been met. Sections on symptoms and treatment of poisoning, a table of solubilities, and an index which makes rapid reference possible complete the book. This handbook will fill a long felt need of hospitals for an outline of professional conduct and practice for their interns and at the same time will exercise a strong influence toward the rational prescribing of remedies.

The Measurement of Visual Acuity. By R. J. Lythgoe. With assistance by Dorothy E. Corkill and with a section by E. S. Pearson. Reports of the Committee Upon the Physiology of Vision, X. Medical Research Council, Special Report Series, No. 173. Paper. Price, 1s. 6d. Pp. 85, with illustrations. London: His Majesty's Stationery Office, 1932.

This is one of a series of reports from the Committee upon the Physiology of Vision and consists of a critical analysis of "visual acuity" based on literature of the past and on exhaustive experimental work by the author. This material is presented in sixty-two pages, thirteen pages being devoted to the tables resulting from the experimental work. A complete bibliography and index conclude the brochure. From the ten points of his summary, the following interesting conclusions may be quoted: The acuity of the eye for estimating the continuity of short straight lines such as vernier scales is many times higher than it is for the resolution of two dots. Up to a test-object brightness of about 12 foot candles, visual acuity is directly proportional to the logarithm of the illumination and continues to improve up to and probably beyond 1,275 foot candles. This disproves the old view that visual acuity is at its maximum at 3 to 4 foot candles. Visual acuity varies with the brightness of the surrounds of the test object, increasing until the surrounds are from one one-hundredth to one tenth as bright as the test object. Beyond that point visual acuity shows a falling off. The effect of glare was investigated and is discussed at some length. The factors found to influence the relation between visual acuity and illumination are (*a*) definition of the end point, (*b*) the degree of illumination of the surrounds, (*c*) the duration of exposure of the test object, (*d*) the use of artificial pupils, and (*e*) the correction of the brightness of the retinal image for pupil area. On the whole, the booklet contains much information, some of which has not yet been corroborated. To one at all interested in the subject, it is worth while, both for reading and for reference.

The Diagnosis and Treatment of Postural Defects. By Winthrop Morgan Phelps, B.S., M.D., M.A., Professor of Orthopaedic Surgery, Yale University, and Robert J. H. Kiphuth, Assistant Professor of Physical Education, Yale University. Cloth. Price, $4. Pp. 180, with 108 illustrations. Springfield, Illinois: Charles C. Thomas, 1932.

This was written by two well qualified authors, whose purpose was to utilize knowledge from many fields and to indicate correct posture and corrective measures in all types of individuals, the nonathletic as well as the athletic. There is an excellent discussion on the subject of evolutionary and environmental influences as they are related to postural defects. The material was well chosen and has been presented in an interesting manner. The illustrations are good. The double exposure films and the line drawings are instructive. Selective exercises are presented in detail and illustrated in order to facilitate their use in schools, camps, associations and clubs. The material was taken from examinations of corrective measures used with the students in Yale University, Choate School, Storm King School and Camp Marienfeld over a period of four years. A study of the environmental influences may shed definite light on the causation of postural defects. Judgment of correct posture should depend on the mechanical efficiency of the position and not on the question of slenderness or obeseness. Just as the mechanical efficiency of any machine is judged by a study of the efficiency of all its parts and their correlation and the disposition of the load, so in the body all these points must be considered. The exercises, which are presented in an easily understood manner, are well chosen. There is a short, well selected bibliography. The book should be of value to the pediatrician, the physical therapist and the orthopedic surgeon.

Radiologic Maxims. By Harold Swanberg, B.Sc., M.D., F.A.C.P., Radiologist, Saint Mary's Hospital and Blessing Hospital, Quincy, Illinois. With a foreword by Henry Schmitz, A.M., M.D., LL.D., Professor of Gynecology and Head of the Department, Loyola University School of Medicine. Cloth. Price, $1.50. Pp. 127. Quincy, Ill.: Radiological Review Publishing Company, 1932.

In this small volume the author has gathered together from numerous sources the important axioms of radiology, together with short statements pertinent to the subject of radiology contributed by physicians of note. As the title implies, each maxim expresses a general radiologic principle. The information given would require much labor and time to secure if looked for in the ordinary course of consulting periodicals and textbooks and even then would not be grasped nearly as well.

Medicolegal

Physician Liable to Insurer for Malpractice to Injured Workman.—An insurer which has paid compensation to an injured workman, under the workmen's compensation act of Massachusetts, may sue a physician whose malpractice aggravated the workman's industrial injury. The insurer may recover damages for the aggravation of the injury and for the pain and suffering of the workman. In *Vatalaro* v. *Thomas*, 262 Mass. 383, 160 N. E. 269, said the Supreme Judicial Court of Massachusetts, it was held that an injured workman, after he has received compensation under the workmen's compensation act, cannot maintain an action against a physician whose negligence aggravated the original injury. Compensation for the aggravation of the injury is obtainable in proceedings under the workmen's compensation act and presumably is included in such proceedings in the compensation paid by the insurer. That decision, said the court, is controlling in this case. When a workman is injured in the course of his employment under circumstances that create a liability on some person other than his employer or his employer's insurer, the injured workman must elect whether to proceed against his employer or the insurer, under the workmen's compensation act, or to proceed in court against the person by whom he was injured. If he proceeds against his employer or the insurer, the law transfers to the employer or insurer any right of action that the injured workmen may have against the person by whom he was injured. The right of action thus transferred covers not only the workman's right of action because of the original

injury but also his right of action, if any, against any person by whom the original injury has been wrongfully aggravated. The fact that the injured workman has elected to proceed against his employer or his employer's insurer, for compensation under the workmen's compensation act, does not afford a loophole through which a physician can escape for the consequences of his malpractice in the treatment of the injured workman.—*Jordan v. Orcutt (Mass.), 181 N. E. 661.*

Medical Practice Acts: Notice Requirement in Revocation Proceeding When Hearing Is Postponed.—The Missouri medical practice act, said the Supreme Court of Missouri, division 2, is to be interpreted as denying the state board of health authority to revoke a license to practice medicine, except after notice and hearing and after an opportunity is afforded the licentiate to defend himself. A physician was notified to appear before the board, March 19, 1925, to answer a complaint against him. On the day set the board was busy with other matters and adjourned without hearing the physician and without informing him or his counsel when it would hear him. The board met again, April 1, without notifying the physician or his counsel, heard the cause in the physician's absence, and revoked his license. As the hearing was not held on the day set, said the Supreme Court, the physician was entitled to official notice of any other date set by the board. If the physician had appeared and defended on April 1, without objecting, he would have waived notice and estopped himself. He knew nothing about the date of the second hearing, however, and he was not charged with the duty of ascertaining that date. The physician was deprived of his right to a notice and an opportunity to defend. The order of the court below restoring the physician's license was affirmed.—*State ex rel. Baepler v. State Board of Health of Missouri (Mo.), 52 S. W. (2d) 743.*

Expert Testimony Necessary to Prove Malpractice.—The defendant-dentist extracted a wisdom tooth from the plaintiff's lower jaw, September 9. There was infection in the region of the tooth, and the jaw became infected. The patient continued to suffer, and the defendant extracted three more teeth. Shortly after December 3, a fracture of the jaw bone was discovered, just back of the first bicuspid tooth on the side from which the wisdom tooth had been extracted. The patient sued the dentist for malpractice, alleging that the jaw was fractured as the result of the operation on September 9. The dentist, however, claimed that the fracture resulted from the diseased condition of the jaw, produced by the infection. The patient produced no expert testimony to prove that the dentist failed to exercise that degree of care and skill in performing the extraction that he was in duty bound to exercise, but the dentist's claims were supported by the claims of several experts. The trial court set aside a verdict of the jury in favor of the patient, and he appealed to the Supreme Court of Wisconsin. Under the circumstances, said the Supreme Court, the verdict of the jury was unwarranted. It was necessary for the patient to produce expert testimony proving or tending to prove that the defendant failed to exercise that degree of care and skill required of him. Since the plaintiff failed to do so, he failed to prove actionable negligence. The judgment in favor of the defendant-dentist was affirmed.—*Lindloff v. Ross (Wis.), 243 N. W. 403.*

Workmen's Compensation Acts: Definition of Hernia Unnecessary.—The trial court awarded a workman compensation for a hernia that developed in the course of his employment. On an appeal to the court of civil appeals, Texas, El Paso, the employer's insurer insisted that the trial court had erred in failing to give the jury "a legal definition of the term hernia." The workmen's compensation act, said the court, does not define hernia. It provides only that when a hernia is the injury alleged, certain facts must be proved to justify an award in the workman's favor. "Hernia" is an ordinary word of simple meaning. It needs no definition. It is not a legal term which has a meaning which an ordinary person would not readily understand. The trial court instructed the jury as to the facts necessary to be proved to sustain a finding that a hernia had developed, and the jury found all such facts in favor of the workman. The award in favor of the workman was affirmed.—*Texas Employers' Ins. Ass'n v. Lemons (Texas), 52 S. W. (2d) 767.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 18-21. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for the Study of Goiter, Memphis, Tenn., May 15-17. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association for the Study of the Feeble-Minded, Boston, May 31-June 3. Dr. Groves B. Smith, Beverly Farms, Godfrey, Ill., Secretary.

American Association for Thoracic Surgery, Washington, D. C., May 9-11. Dr. Duff S. Allen, 3720 Washington Boulevard, St. Louis, Secretary.

American Association of Anatomists, Cincinnati, April 13-15. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American Association of Genito-Urinary Surgeons, Washington, D. C., May 8-10. Dr. Henry L. Sanford, 1621 Euclid Avenue, Cleveland, Secretary.

American Association of Pathologists and Bacteriologists, Washington, D. C., May 2-3. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Bronchoscopic Society, Washington, D. C., May 10. Dr. Edwin McGinnis, 104 South Michigan Boulevard, Chicago, Secretary.

American Gastro-Enterological Association, Washington, D. C., May 8-9. Dr. John Bryant, 311 Beacon Street, Boston, Acting Secretary.

American Gynecological Society, Washington, D. C., May 8-10. Dr. Otto H. Schwarz, 630 South Kingshighway, St. Louis, Secretary.

American Laryngological Association, Washington, D. C., May 9-10. Dr. George M. Coates, 1721 Pine Street, Philadelphia, Secretary.

American Neurological Association, Washington, D. C., May 9-11. Dr. Henry A. Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Washington, D. C., May 8-10. Dr. J. Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary.

American Orthopedic Association, Washington, D. C., May 8-10. Dr. DeForest P. Willard, 1916 Spruce Street, Philadelphia, Secretary.

American Otological Society, Washington, D. C., May 8-9. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.

American Pediatric Society, Washington, D. C., May 8-10. Dr. Hugh McCulloch, 325 North Euclid Avenue, St. Louis, Secretary.

American Physiological Society, Cincinnati, April 10-12. Dr. Frank C. Mann, Mayo Institute, Rochester, Minn., Secretary.

American Psychiatric Association, Boston, May 29-June 2. Dr. Clarence O. Cheney, 722 West 168th Street, New York, Secretary.

American Society for Clinical Investigation, Washington, D. C., May 8. Dr. H. L. Blumgart, Beth Israel Hospital, Boston, Secretary.

American Society for Experimental Pathology, Cincinnati, April 10-12. Dr. C. Phillip Miller, Jr., University of Chicago Department of Medicine, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Cincinnati, April 10. Dr. V. E. Henderson, Medical Building, University of Toronto, Toronto, Canada, Secretary.

American Society of Biological Chemistry, Cincinnati, April 10-12. Dr. Howard B. Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary.

American Surgical Association, Washington, D. C., May 8-10. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

Arizona State Medical Association, Tucson, April 20-22. Dr. D. F. Harbridge, 822 Professional Building, Phoenix, Secretary.

Arkansas Medical Society, Hot Springs, May 2-4. Dr. William R. Bathurst, 814 Boyle Building, Little Rock, Secretary.

Association of American Physicians, Washington, D. C., May 9-10. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, Del Monte, April 24-27. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.

Congress of Physicians and Surgeons of North America, Washington, D. C., May 9-10. Dr. John T. King, Jr., 1210 Eutaw Place, Baltimore, Secretary.

Connecticut State Medical Society, Hartford, May 24-25. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, May 3. Dr. C. B. Conklin, 1718 M Street N. W., Washington, Secretary.

Federation of American Societies for Experimental Biology, Cincinnati, April 10-12. Dr. C. Phillip Miller, Jr., University of Chicago Department of Medicine, Chicago, Secretary.

Florida Medical Association, Hollywood, May 2-4. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.

Georgia, Medical Association of, Macon, May 9-12. Dr. Allen H. Bunce, 139 Forrest Avenue, N. E., Atlanta, Secretary.

Harvey Cushing Society, Louisville, Ky., April 13-14. Dr. Tracy J. Putnam, 818 Harrison Avenue, Boston, Secretary.

Illinois State Medical Society, Peoria, May 16-18. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 10-12. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Lawrence, May 2-4. Dr. J. F. Hassig, 804 Huron Building, Kansas City, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 25-26. Dr. Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.

Minnesota State Medical Association, Rochester, May 22-24. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Mississippi State Medical Association, Jackson, May 9-11. Dr. T. M. Dye, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, May 1-4. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.

Nebraska State Medical Association, Omaha, May 23-25. Dr. R. B. Adams, Center McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 16-17. Dr. D. E. Sullivan, 7 North State Street, Concord, Secretary.

North Carolina, Medical Society of the State of, Raleigh, April 17-19. Dr. L. B. McBrayer, Southern Pines, Secretary.

Northern Tri-State Medical Association, La Porte, Indiana, April 11. Dr. E. P. Gillette, 320 Michigan Street, Toledo, Ohio, Secretary.

Oklahoma State Medical Association, Oklahoma City, May 15-17. Dr. C. A. Thompson, Commercial National Bank Building, Muskogee, Secretary.

Rhode Island Medical Society, Providence, June 3. Dr. J. W. Leech, 167 Angell Street, Providence, Secretary.
Society for the Study of Asthma and Allied Conditions, Washington, D. C., May 6. Dr. W. C. Spain, 116 East 53d Street, New York, Secretary.
South Carolina Medical Association, Spartanburg, April 18-19. Dr. E. A. Hines, Seneca, Secretary.
South Dakota State Medical Association, Huron, May 15-17. Dr. John F. D. Cook, Langford, Secretary.
Tennessee State Medical Association, Nashville, April 11-13. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.
Texas, State Medical Association of, Fort Worth, May 8-11. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.
West Virginia State Medical Association, Charleston, May 8-10. Mr. Joe W. Savage, Professional Building, Charleston, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

22: 1215-1332 (Dec.) 1932

*Rôle of Activated Milk in Antirickets Campaign. A. F. Hess, New York.—p. 1215.
Protective Value for Infants of Various Types of Vitamin D Fortified Milk: Preliminary Report. J. McK. Mitchell, J. Eiman, Dorothy V. Whipple and J. Stokes, Jr., Philadelphia.—p. 1220.
Study of Lobar Pneumonia in Massachusetts: Methods and Results of Pneumococcus Type Determination, 1931-1932. R. Heffron and Florence M. Varley, Boston.—p. 1230.
Incidence of Tularemia in New York State. Ruth Gilbert and Marion B. Coleman, Albany, N. Y.—p. 1249.
*Serology of Syphilis from Standpoint of Public Health Laboratory, with Especial Reference to Precipitation Methods. J. A. Kolmer, Philadelphia.—p. 1253.
Appraisal Form for Industrial Health Service. L. D. Bristol, New York.—p. 1263.

Activated Milk in Antirickets Campaign.—Hess states that in endeavors to protect the community from disease our usual concern is to have at our command a specific agent that is effective. In regard to rickets, quite the contrary holds true. An activated milk should be singled out for prophylactic use because it provides a therapeutic measure which is automatic, in that the specific agent is embodied in the food which is essential for the nutrition of the infant and because milk has the distinction and advantage of being the food which contains calcium and phosphorus in the highest degree. Seven years ago the author reported experiments showing that milk can be activated by means of exposure to ultraviolet energy and a year ago that the milk of cows which are receiving large quantities of irradiated yeast develops high antirachitic potency and may be recommended to protect infants from rickets. Milk can be rendered highly antirachitic by subjecting it for a period of sixteen seconds to the radiations of certain carbon arc rays. In the course of this process it does not develop any disagreeable taste or odor nor is it deprived of its essential vitamins. The department of health in New York established unequivocally that such irradiated milk is able to prevent rickets almost without exception. Biologic assays of this milk showed that it did not vary to a great extent in vitamin D content. It is the established custom to refer to an antirachitic agent such as viosterol, cod liver oil, or irradiated milk as possessing a certain number of antirachitic units per cubic centimeter or per quart. It was found that 35 units of irradiated milk, as determined by the standard rat technic, sufficed to protect a large series of infants. Clinical experiences of this kind are supported by suggestive laboratory observations. Activated milk, in the fluid or dry form, not only possesses the advantage of providing an automatic method of preventing rickets and of supplying this essential factor in a medium rich in phosphorus and calcium but accomplishes this end by means of an exceptionally small amount of the antirachitic factor.

Serodiagnosis of Syphilis.—Kolmer points out that, by employing tests possessing the maximum of sensitiveness consistent with specificity, public health laboratories can do a great deal in minimizing the error of insufficient treatment of syphilis. Precipitation tests for syphilis are more economical than the Wassermann test, since a hemolytic system is not required, but they demand an equal degree of skill and are more subject to error and interpretation of weakly positive and doubtful reactions. Various precipitation tests for syphilis when compared with complement fixation tests lacking in acceptable sensitiveness and specificity result in erroneous conclusions. The use of two or more precipitation procedures has not proved as satisfactory as complement fixation and precipitation tests of acceptable sensitiveness and specificity for the routine testing of serums. It is impossible at present to make a choice of a single precipitation test from among the large number available. The new Meinicke or "clarification" test has been found more sensitive than the Kahn test, of equal specificity and easier to read and interpret the reactions. In a comparative study of the Kline microscopic and Kahn precipitation tests and the Kolmer modification of the Wassermann test, the reactions agreed in 86.7 per cent of more than 1,000 serums and disagreed in 13.3 per cent. The Kline microscopic test was more sensitive than the Kahn and the Kolmer tests but likewise gave a higher percentage of nonspecific or falsely positive reactions than the Kahn test, while the Kolmer modification of the Wassermann test gave no falsely positive reactions. At present, the serum diagnosis of syphilis is best served by conducting a carefully chosen complement fixation and precipitation test on each serum.

Florida Medical Association Journal, Jacksonville

19: 273-310 (Jan.) 1933

Trichomonas Vaginalis. W. M. Rowlett, Tampa.—p. 281.
Resorcinol in Treatment of Dermatophytosis. A. Brown, Jacksonville.—p. 283.
Malaria a Challenge. H. Hanson, Jacksonville.—p. 283.
Comparative Values of Respiratory Stimulants. J. H. Rutter, Daytona Beach.—p. 287.
Practical Estimation of Renal Function. D. P. Bird, Lakeland.—p. 288.

Indiana State Medical Assn. Journal, Fort Wayne

26: 1-50 (Jan. 1) 1933

Penetrating Wounds of Skull: Recovery in Unusual Case. J. R. Pugh, Hammond.—p. 1.
Acute Appendicitis in Children. H. J. Graham, Mishawaka.—p. 3.
Blood Transfusion. R. B. Stout, Elkhart.—p. 8.
Eye Symptoms of Brain Tumor. M. Ravdin, Evansville.—p. 11.
Clinical Variations in Thyroid Surgery. G. Link, Indianapolis.—p. 18.

Journal of Pediatrics, St. Louis

1: 661-796 (Dec.) 1932

Responsibility of Children's Hospital to Its Interns. T. B. Cooley, Detroit.—p. 661.
Calcinosis and Scleroderma: Treatment of Case by Use of Ketogenic Diet. R. L. J. Kennedy, Rochester, Minn.—p. 667.
Massive Generalized Tuberculous Infection in Children, with Recovery. L. B. Dickey and Dorothy J. Starks, San Francisco.—p. 674.
Some Facts About So-Called Neuropathic Constitution. Esther L. Richards, Baltimore.—p. 686.
Hemolytic, Hemophilic Bacillus ("Bacillus X") in Subacute Bacterial Endocarditis. L. D. Fothergill, Marian Sweet and J. Hubbard, Boston.—p. 692.
Infectious (Subacute Bacterial) Endocarditis with Cerebral Thrombosis: Report of Case. M. G. Peterman, Milwaukee.—p. 699.
*Critical Clinical Study of Concentrated and Dried Infant Foods: II. Modified Dried Milk. A. G. de Sanctis, J. D. Craig and O. L. Stringfield, New York.—p. 704.
Infant and Maternal Mortality in Denver. F. P. Gengenbach, Denver.—p. 719.
*Convalescent Serum in Prevention of Mumps. M. Zeligs, Cincinnati.—p. 727.
Influence of Age Factor on Frequency and Monthly Seasonal Incidence of Respiratory Infections. C. C. McLean, Birmingham, Ala.—p. 729.
Argyria: Report of Case in Patient Aged Five and a Half Years. L. T. Royster, University, Va.—p. 736.
Seasonal Incidence of Poliomyelitis In and About Cleveland. J. A. Toomey and H. A. Lipson, Cleveland.—p. 739.
*Nutritive Value of Strained Vegetables in Infant Feeding. G. W. Caldwell, New York.—p. 749.
Von Recklinghausen's Disease in Children: Report of Case Presenting Cutaneous Pigmentation and Bone Changes. S. D. Leader and M. J. H. Grand, New York.—p. 754.
Antiques of Pediatric Interest. T. G. H. Drake, Toronto, Canada.—p. 764.

Concentrated and Dried Infant Foods.—In their critical clinical study of 117 infants fed a modified dried milk, de Sanctis and his associates observed that this dried milk meets the nutritional requirements of the normal infant: vitamins A and B are both present in the usual quantities found in fresh

milk, and vitamins C and D must be supplied by antiscorbutic and antirachitic agents. This food is easily digested by the normal infant. Although the general practice is to discontinue a modified dried milk at the usual age of weaning, children do well on it even if it is continued to the age of 1 year or later. The gain in weight and the physical development in general in their series of cases compare favorably with groups fed various other foods. The excellent average gain in weight in their athreptic group of infants shows the value of this modified dried milk as a concentrated food in the feeding of marantic infants. There was no greater incidence of infection in this group of cases than in a control group.

Convalescent Serum in Prevention of Mumps.—Zeligs gave forty-four boys aged from 10 to 18 years, who according to their history had never had mumps and who had been definitely exposed, since they slept in dormitories with the beds quite close together, ate in common dining rooms and were together in the classrooms and playgrounds, an injection of 5 cc. of convalescents' serum seven days after exposure to the disease. None developed mumps. It appears from the author's report and from the data in the literature that convalescents' serum is of definite value in the prevention of mumps in exposed persons if employed early and in sufficient dosage.

Nutritive Value of Strained Vegetables.—According to Caldwell, strained vegetables were well tolerated and digested in a series of young infants studied from this standpoint. Digestive disturbances were not encountered, undoubtedly because during the straining process to which these vegetables are subjected most of the fiber is removed, leaving only the mineral, vitamin and nutritive elements. The quantity of strained vegetables used was 1 ounce daily for infants under 3 months of age, 2 ounces daily for infants between 3 and 5 months, and 4½ ounces daily for infants over 5 months. Properly prepared vegetables contain an adequate supply of minerals and vitamins to promote optimal development of bones and teeth.

New England Journal of Medicine, Boston

207: 1069-1124 (Dec. 15) 1932

*Follow-Up Report on Clinical Study of Two Hundred and Fifty Cases of Cardiac Asthma and Survey of Additional Group of Twenty-Two New Cases. S. McGinn and P. D. White, Boston.—p. 1069.
High Points in Recommendations of Committee on the Costs of Medical Care. R. L. Wilbur, Washington, D. C.—p. 1073.
New Method of Administering Oxygen: Preliminary Note. A. M. Burgess and A. M. Burgess, Jr., Providence, R. I.—p. 1078.
Complications of Pregnancy as They Affect Maternal Nervous System and Bony Pelvis. C. J. Kickham, Boston.—p. 1082.
Progress in Laryngology. L. A. Schall, Boston.—p. 1088.

Clinical Study of Cardiac Asthma.—McGinn and White followed up a series of 250 cases of cardiac asthma to the deaths of 230 of the patients, and reviewed a smaller supplementary group of 22 cases. Patients presenting this symptom of organic heart disease are most frequently men over 50 years of age with hypertensive or coronary heart disease. Although exceptions are not uncommon, the average expectancy of life was found to be little more than two years, one out of four patients dying within six months. The better the treatment, the longer the life. Rarely a patient may become free from attacks. The prognosis is much more serious when cardiovascular syphilis is the underlying factor or when cardiac asthma is associated with congestive failure, aortic regurgitation or auricular fibrillation. The presence of pulsus alternans, gallop rhythm or severe long attacks likewise makes the outlook dubious. Chronic passive congestion and left ventricular hypertrophy were the principal observations in fifteen postmortem examinations. The most effective treatment of acute attacks of cardiac asthma has consisted in the hypodermic injection of morphine and the assumption of the upright position; these measures have generally been successful. Venesection has been rarely required, but it should be carried out in severe attacks. Hemostasis by the application of tourniquets (blood pressure cuffs preferably) to the four extremities has not been employed in these groups. Diuretics, whether or not there have been signs of congestive heart failure, have been beneficially added to the usual rest and digitalization prescribed for these patients. The establishment and maintenance of an adequate digitalis effect are of the greatest value in most cases for the prevention of cardiac asthma and the prolongation of life.

Southwestern Medicine, Phoenix, Ariz.

16: 485-526 (Dec.) 1932

Primary Carcinoma of Bronchus. W. S. Lemon, P. P. Vinson, H. J. Moersch and B. R. Kirklin, Rochester, Minn.—p. 485.
Management of Cancer of Breast. A. Soiland, Los Angeles.—p. 493.
Object of the Cancer Commission. C. G. Toland, Los Angeles.—p. 494.
Diagnosis and Treatment of Adenomatous Goiter. J. W. Hendrick, Amarillo, Texas.—p. 501.
Arthritis, Under the Light of Recent Research. E. D. McBride, Oklahoma City.—p. 504.

Surgery, Gynecology and Obstetrics, Chicago

55: 681-798 (Dec.) 1932

*Unilateral Exophthalmos in Intracranial Tumors, with Especial Reference to Its Occurrence in Meningiomas. C. A. Elsberg, C. C. Hare and C. G. Dyke, New York.—p. 681.
Hiccup. C. W. Mayo, Rochester, Minn.—p. 700.
*Acute Gallbladder Manifesting Few Signs or Symptoms. S. H. Mentzer, San Francisco.—p. 709.
Postoperative Pulmonary Complications. E. L. Eliason and C. McLaughlin, Philadelphia.—p. 716.
*Surgical Menopause After Hysterectomy, With and Without Ovarian Conservation. J. V. Sessums and D. P. Murphy, Philadelphia.—p. 728.
Studies on Peripheral Vascular Phenomena: I. New Device for Study of Peripheral Vascular Phenomena in Health and Disease. C. A. Johnson, Chicago.—p. 731.
Id.: II. Observations on Peripheral Circulatory Changes, Following Unilateral Cervical Ganglionectomy and Ramisectomy. C. A. Johnson, G. W. Scupham and N. C. Gilbert, Chicago.—p. 737.
Technic of Operation for Cancer of Female Breast: End-Results in One Hundred and Twenty-Nine Cases Seven Years After Operation. J. N. Jackson and J. H. Ogilvie, Kansas City, Mo.—p. 742.
Surgery of Ankylosed Joint. W. C. Campbell, Memphis, Tenn.—p. 747.
Fractures of Metacarpals and Phalanges. R. W. McNealy and M. E. Lichtenstein, Chicago.—p. 758.
Fractures of Jaw. F. A. Figi, Rochester, Minn.—p. 762.
*Vaginal Versus Rectal Examinations in Relation to Obstetric Morbidity, Following Mercurochrome Technic: Analysis of Three Thousand Eight Hundred and Eighty-Four Cases at Methodist Episcopal Hospital in Brooklyn, N. Y. H. W. Mayes, New York.—p. 771.
Mortality Factors in Gynecology: Statistical Study of Deaths from 1902 to 1932 at Free Hospital for Women, Brookline. M. K. Bartlett and F. A. Simmons, Jr., Brookline, Mass.—p. 777.

Unilateral Exophthalmos in Intracranial Tumors.—Elsberg and his associates found in a series of 807 intracranial tumors marked unilateral exophthalmos in fifteen patients. Most of the tumors were meningeal fibroblastomas, but exophthalmos occurred also in a case of primary carcinoma of a sweat gland of the scalp, in an epidermoid in the middle cranial fossa, in two cases of orbito-ethmoidal osteoma and in a case of Paget's disease with intracranial complications. Unilateral exophthalmos may also occur in metastatic carcinoma and in venous and arteriovenous angiomas. The protrusion of one eyeball was often, for a number of years, the only symptom. The exophthalmos was most frequently on the left side in females and on the right side in males. In many of the patients there was also a cranial hyperostosis, visible when on the vertex and demonstrable by roentgen rays when on the base. The protrusion of the eyeball was most often due to perforation of the tumor into the orbit, thickening of the orbital walls, extension of the growth through an enlarged superior orbital fissure, or increase of pressure in the middle cranial fossa directly transmitted to the orbital contents through the superior orbital fissure. There was no positive evidence in any case that the unilateral exophthalmos was the result of compression of the cavernous sinus or the ophthalmic veins and venous stasis.

Acute Gallbladder Disease Manifesting Few Symptoms.—Mentzer states that the total cholecystic lesions encountered during the period between 1919 and 1931 at the San Francisco Hospital were 93 cases of pericholecystitis, 134 of acute cholecystitis, 630 of chronic cholecystitis, 639 of chronic cholelithiasis and 118 of common duct stone or carcinoma. Of the 134 patients presenting acute cholecystitis, 43 were operated on for perforation, gangrene or acute empyema. Of these, 17 were men and 26 women, aged from 20 to 85. The greatest number of operations occurred between the ages of 45 and 50, although there was a surprisingly high percentage between the ages of 60 and 70. Two moderately severe instances of acute gangrenous cholecystitis developed in persons aged 23 and 25. Six of the forty-three patients stated that they had never had stomach distress of any sort. Two had had distress of less than three months' duration; the remaining thirty-five patients gave a history of suggestive or typical gallbladder disease over relatively long periods of time. Only two of the patients, however, had been previously jaundiced. One patient stated that

there had not been acute symptoms and maintained that he had had no distress even immediately before operation. One patient was operated on for a strangulated femoral hernia: the hernia was present but not incarcerated, and a ruptured gallbladder caused the acute abdominal symptoms. One patient was operated on for a ruptured ulcer. His previous history was quite typical of chronic duodenal ulcer, but at operation an early gangrene of the gallbladder was found but no peptic ulcer. Only one patient had a history of acute onset twelve hours before exploration. This patient recovered. Eight patients had distress for one day or less, and one patient had an exacerbation of acute cholecystic signs for one day before operation was performed. The majority of the patients were observed from one to six days before operation. The author discusses pain, indigestion, tenderness, jaundice, fever and the leukocyte count as it affected the forty-three patients with acute cholecystitis on whom he operated. He concludes that the pathologic changes present in acute cholecystitis cannot be adequately evaluated clinically. Exploratory laparotomy should be instituted earlier in suspected cases of advanced acute cholecystitis. Perforations and gangrene of the gallbladder occur more frequently than is usually believed. Acute empyema of the gallbladder is best treated by conservative surgery (i. e., cholecystostomy). Perforations and gangrene warrant early cholecystectomy.

Surgical Menopause After Hysterectomy.—Sessums and Murphy interrogated ninety-one women, subjected to hysterectomy with retention of one or both ovaries, and fifty-two women, subjected to hysterectomy and bilateral oophorectomy, before the age of 36, with reference to the incidence, onset, duration and severity of the surgical menopause, as indicated by its most important symptom, the hot flush. They observed that the surgical menopause occurred in more patients, took place sooner, and was more severe after hysterectomy with associated bilateral oophorectomy than when one or both ovaries were conserved. The surgical menopause, after hysterectomy with and without associated bilateral oophorectomy, persisted in three fourths of their patients at the time of the last observation. In the remaining fourth, it had been completed. Its duration was shorter after associated bilateral oophorectomy than after hysterectomy with ovarian conservation. From this study and a previous one they conclude that, when hysterectomy is to be performed during the childbearing period, the best interest of the patient is guarded by conservative treatment of ovarian tissue.

Vaginal Versus Rectal Examinations.—Mayes points out that the use of mercurochrome as a vaginal antiseptic during labor makes vaginal examinations safe. The prevailing high stillbirth rate may be due in part to the fact that abnormal conditions are not recognized in time by rectal examinations. Every patient should have at least one vaginal examination early in the course of her labor and, if labor is not normal, it should be repeatedly checked by a vaginal examination. The author states that a review of the literature emphasizes the inaccuracy of rectal examinations and that vaginal examinations are much more satisfactory. Rectal examinations may injure the rectovaginal septum and aggravate pathologic conditions, such as hemorrhoids and fissures. Following viable vaginal deliveries, 3,884 cases gave an uncorrected morbidity of 5.7 per cent. In 1,947 cases with only rectal examinations there was a morbidity of 5.08 per cent, and in 3,180 cases with at least one rectal examination the morbidity was 5.4 per cent. In the 595 patients on whom only vaginal examinations were made, the morbidity was 6.8 per cent; while in 985, 380 of whom had had a single rectal examination before being prepared, the morbidity was 6.5 per cent. Of the 1,828 patients who had 4,811 vaginal examinations, an average of 2.6 to the patient, the morbidity was 6.3 per cent. In the 109 patients on whom no examinations were made during labor, the morbidity was 8.2 per cent. In the cesarean group there was less morbidity following vaginal than rectal examinations. In the author's 238 personal patients on whom at least one vaginal examination was made, the morbidity was 4.9 per cent; and in 36 patients with only rectal examinations, the morbidity was 4.7 per cent. The slight increase (about 1 per cent) in the morbidity in all the vaginal groups can be accounted for by the fact that vaginal examinations were done in all the more difficult cases and in those in which labor was prolonged.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

17: 1-64 (Jan.) 1933

Lateral Eyes of Sphenodon, with Especial Reference to Macular Region. Ida Mann.—p. 1.
*Penetrating Wounds of Posterior Chamber of Eye. W. A. Gray.—p. 15.
Severe Sympathetic Inflammation Brought to Successful Conclusion: Case. J. H. Fisher.—p. 35.
New Lacrimal Sac Retractor. V. P. Patel.—p. 39.
Does Trauma Favor Occurrence of Echinococcus in Orbit? V. P. Patel.—p. 40.
Diabetic Retinitis: Case. A. B. Zorab.—p. 41.

Wounds of Posterior Chamber of Eye.—Gray reports that under experimental conditions in the rabbit, as under conditions of clinical injury in man, the prolapsed vitreous has a considerable power of resisting infection which might lead to the destruction of the eyeball. The injection of even a minute quantity of a virulent pyogenic organism such as Bacillus pyocyaneus to a depth of 5 mm. or more into the vitreous is almost invariably followed by a rapidly destructive suppuration of the eyeball. On the other hand, it was difficult to produce infection by flooding the surface of vitreous prolapse with the same bacteria even in great concentration. There seems little doubt that the vitreous provides a reasonably good culture medium for bacteria, and it is hard to understand why the spread of infection does not take place. It cannot be claimed that the experiments explain this difference in the result of superficial and deep inoculation, but certain possible explanations appear to have been eliminated. No significant bactericidal action of the tears or of the animal's serum could be demonstrated. Nor was it possible to consider that the mechanical action of the eyelids or dilution and removal of the bacterial inoculum by tears was responsible for the benign course of superficial prolapse. Bacteria in excess of those producing an invariable panophthalmitis on deeper inoculation could be introduced without effect into the surface of the prolapse while the latter was covered with a valvelike flap of conjunctiva. Although the position of the surface prolapse implies its close proximity to the vascular choroid, there was no histologic evidence that phagocytosis of the inoculated bacteria played any significant part.

British Journal of Urology, London

4: 307-421 (Dec.) 1932

Fibromyxosarcoma of Spermatic Cord: Report of Case and Review of Literature of Cord Tumors. D. W. Mackenzie.—p. 307.
Periarteritis Nodosa: Report of Case Involving One Kidney. R. E. Powell and J. E. Pritchard.—p. 317.
Excretion Urography with Per-Abrodil. H. P. Winsbury-White.—p. 328.

British Medical Journal, London

2: 1131-1176 (Dec. 24) 1932

Observations Concerning Relationship Between Cholesterol Metabolism and Vascular Disease. L. Aschoff.—p. 1131.
Biochemical Syndrome of Uremia. G. Thompson.—p. 1134.
Survey of Three Hundred and Forty Cases of Acute Appendicitis. J. M. Black.—p. 1136.
*Rectal Paraldehyde Before Operation. J. D. Stewart.—p. 1139.
Tropical Typhus. W. Fletcher.—p. 1140.
Spontaneous Acute Myxedema: Case. H. A. Watney and A. H. Douthwaite.—p. 1142.
Fundamental Principles of Obstetric Practice. Louise McIlroy.—p. 1158.

Rectal Paraldehyde Before Operation.—Stewart reports his experience in 500 cases in which he administered paraldehyde rectally before operation. He gives the paraldehyde in saline solution in the relative proportions of 1½ ounces (45 cc.) of saline solution to each drachm (3.75 cc.) of paraldehyde. The adult dose is 8 drachms (30 cc.) of paraldehyde, except when the patient's weight is less than 112 pounds (50 Kg.). His procedure is as follows: The evening before operation the patient is given an enema, and a sedative such as barbital, diallyl-barbituric acid or cyclohexenyl ethyl barbituric acid. The following morning, one and a half hours before operation, 1/100 grain (0.00065 Gm.) of atropine is administered hypodermically and immediately afterward the paraldehyde solution, freshly mixed and thoroughly shaken, is slowly introduced into the rectum by means of a catheter. Retention is rarely difficult. Sleep usually supervenes within a few minutes and is not disturbed when the patient is moved to the operating room.

The patient remains oblivious to the administration of the anesthetic, and induction is singularly easy and rapid, owing to the complete absence of resistance or excitement. The maintenance of anesthesia is a simple matter and a surprisingly small quantity of anesthetic is required. After the operation the patient sleeps quietly for a variable number of hours. He can be awakened during this period, but quickly goes off to sleep again. Spontaneous awakening usually occurs from five to eight hours after the operation, the patient remaining drowsy and comfortable for a considerably longer period and securing, in most cases, a restful first night, often without the aid of morphine. The author concludes that rectal paraldehyde provides a safe and certain method of eliminating for the patient the more unpleasant accompaniments of operation. He remains relatively comfortable during the trying twenty-four hours following operation, and subsequent distressing recollections are absent. Preliminary rectal paraldehyde, while facilitating the anesthetist's task, adds nothing to his anxieties concerning the patient either during or after the operation.

Journal of Physiology, London

77: 1-110 (Dec. 19) 1932

*Double Vagotomy in Relation to Respiration. G. V. Anrep and A. Samaan.—p. 1.
Observations on Panting. G. V. Anrep and M. Hammouda.—p. 16.
Pressure of Aqueous Vapor in Alveolar Air. R. V. Christie and A. L. Loomis.—p. 35.
Studies in Muscular Activity: VII. Factors Limiting Capacity for Work. D. B. Dill, H. T. Edwards and J. H. Talbott.—p. 49.
Physiologic Leukocytosis: II. Postprandial Leukocytosis and Widal's Hemoclastic Test for Hepatic Efficiency. H. E. Martin.—p. 63.
*Action of Adrenalin on Cardiac Vagus Centers. G. Stella.—p. 68.
Phlorhizin Diabetes in Fasting or Fed Hypophysectomized Dogs. A. Biasotti and B. A. Houssay.—p. 81.
Ketosis in Pancreatic and Phlorhizin Diabetes of Hypophysectomized Dogs. C. T. Rietti.—p. 92.
Blood Cholesterol in Anesthesia. A. C. Ghose.—p. 97.
Metabolism of Lactose: Part II. Blood Sugar During Lactation. L. B. Winter.—p. 100.
Negative Phase in Heat Production of Muscle. W. Hartree.—p. 104.

Double Vagotomy and Respiration.—Anrep and Samaan subjected to an experimental test the pulmonary, laryngeal and the cardio-aortic theories of the respiratory slowing down that follows double cervical vagotomy. Their experiments fail to support Sharpey-Schafer's view that the classic respiratory slowing down is due to paralysis of the laryngeal muscles. They also fail to support Heymans' view that it is due to a cardio-aortic denervation. The effect of double vagotomy on respiration is due to the denervation of the lungs.

Epinephrine on Cardiac Vagus Centers.—Stella states that epinephrine, injected intravenously in dogs in moderate doses (from 0.002 to 0.005 mg. per kilogram), enough to cause an increase of arterial pressure and a marked slowing of the heart, does not seem to have any direct exciting effect on the cardio-inhibitory centers. Epinephrine administered in these amounts is, nevertheless, not entirely without action on the centers, since it increases the reflex excitability of the cardio-inhibitory centers to afferent impulses from the depressor and the carotid sinus nerves. Epinephrine bradycardia is reflex in origin and due to the arterial pressure acting on the sensitive regions of the carotid sinus and of the territory of distribution of the depressor nerves; its degree, however, is conditioned by a state of increased reflex excitability of the cardiac vagus centers caused by the injected epinephrine.

Journal of State Medicine, London

40: 683-744 (Dec.) 1932

Some New Investigations Regarding Old Bacteriologic Problems. M. Neisser.—p. 683.
Health of Chromium Plating Workers. H. B. Trumper.—p. 696.
Silico-Anthracosis. W. E. Cooke.—p. 702.
Workmen's Compensation in Pulmonary Disease. C. L. Sutherland.—p. 709.
Rats and Vermin and Their Rôle in Spread of Disease. W. M. Frazer.—p. 717.
Use of Tuberculin in Treatment of Pulmonary Tuberculosis. J. R. Gillespie.—p. 727.
Care of Eyes of Industrial Workers. M. Shaw.—p. 732.

South African Medical Journal, Cape Town

6: 791-826 (Dec. 24) 1932

Counter-Prescribing. W. Froembling.—p. 793.
Life-Cycle of Malaria Parasites in Human Blood. A. Bonfa.—p. 796.
Atebrin in Malaria. W. J. May.—p. 801.
Urbanization of the Bantu. D. L. Ferguson.—p. 802.
Study of Comparative Pathology. G. de Kock.—p. 806.

Gazette Hebdomadaire des Sciences Méd. de Bordeaux

54: 65-80 (Jan. 29) 1933

*Cultures of Tubercle Bacilli on Ordinary and Distilled Water. M. J. Caussimon.—p. 68.

Culture of Tubercle Bacilli in Water.—Caussimon states that tubercle bacilli which have been propagated in glycerinated oxbile for years, according to Calmette and Guérin, can grow in ordinary or distilled water (nonsterilized), at room or incubator temperature. In water the B C G culture develops in the form of a light translucent veil at the surface, extending downward. The veil consists of a cyanophilic stroma, composed of homogeneous matter, granulations, filaments and sporulated elements on which grow abundant acid-fast bacilli, short, long and granular forms. The cultures can be transplanted on water. The appearance of acid-fast bacilli in the transplants on water may require from one to three months. The transfer of aqueous cultures to the customary rich mediums is almost always negative. The properties of the B C G cultures grown on water may be conserved for a long time, but in some cultures a partial disappearance of the acid resistance is observed; the virulence usually disappears completely despite the persistence of the acid resistance. Some of the aqueous cultures were kept alive for more than a year, but all of them finally died. Virulent human tubercle bacilli can be transferred directly from glycerinated potato medium to water but it is difficult to transplant them back to highly nutritive mediums. The virulence disappears after a period of aqueous culture.

Presse Médicale, Paris

41: 185-208 (Feb. 4) 1933

Familial Hemorrhagic Angiomatosis. C. Aubertin, R. Lévy and Mme. Baclesse.—p. 185.
*Roentgen Irradiation of Suprarenal and Cervical Sympathetic Region in Vasomotor Disturbances of Extremities. L. Langeron and Desplats.—p. 189.
Treatment of Ozena by Bacteriophage Associated with Medicamentous Vasodilation or Roentgen Therapy. Halphen and Djiropoulos.—p. 190.
*Sodium Morrhuate for Sclerosing Treatment of Varicose Veins. R. Tournay.—p. 192.
Pure Gonococcic Septicemia. I. Nanu, D. Jonnesco, I. Claudian and A. Brull.—p. 194.

Irradiation of Suprarenal and Cervical Sympathetic Region.—Langeron and Desplats employed roentgen irradiation of the suprarenal and cervical sympathetic regions for the treatment of vasomotor disturbances of the extremities in forty-one cases. Good results were obtained in the case of the syndrome of Raynaud's disease supervening in the course of generalized arteritis, acroparesthesia, erythromelalgia, post-traumatic disturbances and trophic disturbances associated with a general sympathetic disturbance; the results were poor in autonomous Raynaud's disease due to local arteritis or acrocyanosis. The authors think that possibly irradiation of the suprarenal region is preferable for the lower extremities, while irradiation of the laterocervical region at the level of the first dorsal vertebra is preferable for the upper extremities, but there is probably no essential difference between the methods and they advise utilizing the two simultaneously. They employed doses of 500 roentgens once or twice weekly; there is no advantage in giving stronger doses or repeating them more frequently. This treatment must be instituted cautiously: aiming to reestablish a disturbed sympathetic equilibrium, one must watch the abnormal excitability of such a sympathetic and its reaction to the doses employed.

Sodium Morrhuate for Sclerosing Treatment of Varicose Veins.—Tournay states that sodium morrhuate in a 5 per cent solution is an excellent sclerosing agent for varicose veins and merits comparison with the best agents now in use. Starting with 0.5 cc. of a 5 per cent solution, the dose is gradually increased to 1.5 cc. according to the result obtained. An injection of 1.5 cc. almost always suffices to sclerose a vein of medium caliber. Only in exceptionally large phlebectases are doses of from 2 to 5 cc. required. In rare cases in which a 5 per cent solution produces only a thickening of the wall without complete obturation, a 10 per cent solution may be used. Its advantages are: the facility of the technic (injection of small quantities, fluidity of the solution); the painlessness of the injection; the low causticity for the perivaricose tissues; the lack of toxicity of therapeutic doses, and the possibility of

rapid treatment. The disadvantages of sodium morrhuate are: the difficulty of preparing the substance; its lack of stability; the fact that the fibrosis produced is not always extremely firm and solid; greater frequency of recurrences and the formation of blood pockets between the sclerosed segments, and the sometimes prolonged sensitivity of the sclerosed segments. The author recommends its use when rapid treatment is desired or if the patient fears the cramp produced by the salicylate, or in cases in which the other substances have proved insufficient.

Policlinico, Rome

40: 123-162 (Jan. 23) 1933. Practical Section

Studies and Experiences with Focal Infections. M. Lusena.—p. 124.
*Several Cases of Cerebral Rheumatism. A. Ferri.—p. 135.

Cerebral Rheumatism.—Ferri reports on three patients, aged from 30 to 35, who had several preceding attacks of polyarthritis complicated by visceral localizations and by moderate and remittent fever unmodified by salicylates and finally rising to hyperpyrexia and death, with symptoms indicating involvement of the cerebellum previous to the establishment of the high temperatures. No alcoholism was observed. Other symptoms of the disease, described by Oddo, were present: intense spontaneous sudoresis, cephalea, insomnia, nocturnal delirium and melancholia. According to several authors, hyperpyrexia is the most important precursory sign of the disease; others maintain that the disappearance of arthropathy together with the quick rise in temperature and the aggravation of general symptoms constitutes an extremely important factor in the genesis of cerebral rheumatism. The author states furthermore that, when in cases of acute rheumatic polyarthritis, especially if grave and recurrent, the sodium salicylate treatment fails and the temperature rises despite the antithermic chemotherapy, antipyretic treatment should be administered immediately. The author advocates the ice bag, which is more localized and leads less to shock than the water bath advocated by others.

Archiv für Kinderheilkunde, Stuttgart

98:129-192 (Jan. 24) 1933

*Measles and Tuberculosis. H. Koch.—p. 129.
*Sarcomatous Tumor of Pleura in Child. U. Neumann.—p. 139.
Icterus Gravis Neonatorum. G. Meyer.—p. 143.
Permeability of Colon of Nurslings for Foreign Protein. E. von György and J. Surányi.—p. 151.
Comparative Investigations on Active Immunization Against Diphtheria with Formoltoxoid (Anatoxin) Vaccines. H. Happe.—p. 154.
Action of Intravenous Hypertonic Dextrose Infusion. E. György and L. Veszelszky.—p. 164.
Metabolic Studies on Older Children During Vegetarian Diet (with Consideration of Protein Minimum). Franziska Boldt.—p. 168.

Measles and Tuberculosis.—According to Koch, measles leads quite frequently to activation of tuberculosis. As the cause of this he considers the fact that during the prodromal stage measles exerts great influence on the cellular exudation. The more severe the onset of measles, the more dangerous are the effects. But the activation is also dependent on the character of the tuberculous focus. The more predominating the exudative character, the greater is the tendency for activation, whereas in the proliferating stage activation is less likely. Young children and those in whom the tuberculous infection is recent are especially endangered. For these the author recommends vaccination.

Sarcomatous Tumor of Pleura in Child.—Neumann relates the clinical history of a girl, aged 2 years and 9 months. Three weeks previous to hospitalization the child had developed coryza, cough and fever, and the parents had noted shortness of breath, lack of appetite, loss of weight and unusually small quantities of urine. Exacerbation and the fear of pleural exudation or empyema led to hospitalization. Exploratory puncture yielded little blood but several whitish tissue shreds. The latter were deficient in fibers but contained many spindle cells and some atypical giant cells. A tumor was suspected and roentgenoscopy revealed a dense shadow extending over nearly the entire left half of the thorax. The heart and mediastinum showed considerable displacement toward the right. The case was diagnosed as extensive malignant tumor of the thorax. The girl's condition became rapidly worse and she died several days later. Postmortem examination and microscopy of the tumor revealed a spindle-cell sarcoma of the left costal pleura. The author classifies this tumor with the giant tumors of the pleura, which so far have been reported only in adults. Since metastases and adhesions are absent in these tumors, they are suitable for surgical treatment.

Deutsche medizinische Wochenschrift, Berlin

59: 157-198 (Feb. 3) 1933

Problem of So-Called Traumatic Encephalopathies. F. Kehrer.—p. 157.
*Specific Action of Ultrashort Waves. T. Reiter.—p. 160.
Gallstone Disease and Gastric Ulcer. R. Ehrmann.—p. 166.
*Glycine Treatment of Progressive Muscular Dystrophy. S. Kostakow and A. Slauck.—p. 169.
Dangers in Anesthesia of Urethra and in Urethrography and Their Prevention. A. Hendriock.—p. 171.
Stomatogenic Focal Infection and Dental Therapy. E. Feiler.—p. 172.
Infectious Pharyngeal Catarrh and Irritative Cough. R. von den Velden.—p. 174.
Action of Pure Alcohol on Gastric Motility. L. von Friedrich and G. A. Bokor.—p. 175.

Specific Action of Ultrashort Waves.—Reiter calls attention to the essential difference between the effect of ultrashort waves and diathermy. He points out that the ultrashort waves, that is, those of less than 15 meters in length, differ in their biologic action from the short waves that are longer than 15 meters. Wavelengths of more than 15 meters have a uniform deep heating effect, and those of less than 15 meters, in addition to this, are capable of selective warming of certain tissues. The author describes his investigations on the specific biologic effects of the ultrashort waves. First he discusses the so-called inflammatory stimulation effect. This effect becomes strong in wavelengths of 10 meters or less and is strongest in the wavelengths around 4 meters. The second biologic effect of the ultrashort waves investigated by the author was the influence on tumor tissues. In experiments on about 600 tumors in rats, he found that in the destruction of tumors a wavelength of 3.4 meters is most effective. He thinks that these actions of the ultrashort waves, besides having theoretical interest, also hold promise for the treatment of human carcinomas.

Glycine Treatment of Progressive Muscular Dystrophy.—Following introductory remarks about investigations conducted by others, Kostakow and Slauck report their own studies on the creatine-creatinine metabolism and its modification by glycine. They reach the conclusion that, in addition to phosphagen and lactic acid, glycine to a certain extent is a factor in the physiology of the muscles. Whether, besides influencing creatine formation, glycine has still other functions is as yet undecided. Metabolic studies convinced the authors that in muscular dystrophy the organism has lost the ability to utilize creatine. The organism regains this capacity under the influence of glycine. Thus glycine is of benefit in progressive muscular dystrophy, and the authors think that the treatment with glycine has prospects not yet realized.

Zeitschrift für Tuberkulose, Leipzig

66: 401-496 (Feb.) 1933

Tuberculous Infection of School Children in Mansfeld. E. Kalle.—p. 401.
Investigation on Mineral Metabolism of Tuberculous Patients During Sauerbruch-Herrmannsdorfer-Gerson Diet. A. Herrmannsdorfer and A. Jung.—p. 407.
*Observations During Auscultation of Vowels Over Normal Pulmonary Tissue and Over Pulmonary Tissue with Tuberculous Infiltration. H. von Putkovszky.—p. 422.
History of Bilateral Pneumothorax. D. Hellin.—p. 431.
Partial Plastics in Pneumothorax, Also Remarks on Extrapleural Apicolysis as Aid in Pneumothorax Treatment. H. Kleesattel.—p. 434.
Clinical Aspects of Spontaneous Pneumothorax. G. Simsch and H. Schley.—p. 444.
Comparative Serologic and Chemical Experiments with Virulent Tubercle Bacilli and with Those of B C G. Marie Maxim.—p. 450.
*Tuberculosis Immunity and Complement Fixation. K. L. Pesch and P. Uhlenbruck.—p. 454.

Auscultation of Vowels over Lung.—Von Putkovszky shows that the capacity of the pulmonary tissues to conduct sound, which becomes manifest during the formation of vowels, is helpful in the determination of pathologic processes in tuberculous infiltration of the lung. The intensity of the bronchophony, by which this sound phenomenon is generally designated, permits inferences about the anatomic structure of the medium conducting the sound. After reviewing Helmholtz's vocal theory, the author explains the mechanism of sound conduction of the healthy and of the infiltrated lung. He found that the auscultation of the vowel E (German I) is most suitable for

testing the sound conduction capacity of infiltrated pulmonary tissues. In the course of several years he made comparative studies on a large material, comparing the roentgenologic aspects, the percutory resistance, the auscultation of the respiratory sounds and the sound conduction capacity of the pulmonary tissues during formation of the vowel E (German I). He found that the determination of the intensity of the resonance of the pulmonary tissues is a valuable aid to the other methods, that it facilitates rapid and clear orientation about infiltration and induration, and that in some cases it gives insight into the pathomorphologic processes.

Tuberculosis Immunity and Complement Fixation.—Pesch and Uhlenbruck show that Pesch's modification of the Neuberg-Klopstock complement fixation reaction for tuberculosis is an improvement of the method. Tests on 104 patients with tuberculosis revealed that the modification increased the positive results by 20 per cent. The reaction has a high degree of specificity and the authors think that a strongly positive reaction indicates pulmonary tuberculosis with considerable certainty, although a negative reaction does not exclude a tuberculous infection. The highest percentage (90.9) of positive reactions was observed in the exudative forms of pulmonary tuberculosis. In the early stages of tuberculosis, the positive reactions were much less frequent, and the lowest percentage of positive reactions was observed in the inactive forms, but in moribund and in active cirrhotic cases the incidence of positive reactions was considerably higher. In six cases of rheumatic polyarthritis, the reaction was clearly negative. The authors emphasize that a single test has no prognostic value.

Zentralblatt für Chirurgie, Leipzig

60: 305-368 (Feb. 11) 1933

Experiences with Evipan-Sodium Anesthesia. K. Baucks.—p. 306.
Puncture of Gasserian Ganglion. F. F. Härtel.—p. 310.
Detoxin as Nonspecific Method of Treatment of Septic Conditions. J. Kroesen.—p. 315.
Case of Complete Compression of Trachea by Myxoma of Neck. F. Hogenauer.—p. 318.
Successful Method of Treating Ganglions. J. Fischer.—p. 320.
Treatment of Acute Appendicitis. K. Sponheimer.—p. 321.
*Fatty Pseudotumor Caused by Diathermy. F. Oehlecker.—p. 324.
Traumatic Necrosis of Fat Tissue. W. Fischer.—p. 329.

Fatty Pseudotumor Caused by Diathermy.—Oehlecker reports three cases in which there developed, several weeks after diathermy, a tumor-like mass in the deep subcutaneous fatty tissue. The mass was well circumscribed, round, painless, and the size of a walnut. The patients did not experience a sense of unusual heat. The swelling was considered to be a tumor or a hernia. The macroscopic appearance after excision revealed the true nature of the swelling; it consisted of altered fatty tissue. The author believes that the relative insensitiveness of the fatty tissue was responsible for the fact that the patients did not experience the heat. Because fatty tissue is a poor conductor, the development of heat as a result of resistance to the passage of the current appears theoretically possible. The author raises the question of the possibility of injuring the mesentery in diathermy treatment of the abdominal wall.

Zentralblatt für Gynäkologie, Leipzig

57: 129-192 (Jan. 21) 1933. Partial Index

Results with Sacral Anesthesia. W. Haupt and R. Kraus.—p. 129.
Traumatic Postoperative Apoplexy of Pelvic Organs. B. Ottow.—p. 142.
*Diagnosis and Treatment of Inflammatory Diseases of Genitalia and of Puerperal Fever By Specific Vaccine. A. Mandelstamm and M. Teverowsky.—p. 146.
*Chorio-Epithelioma and Aschheim-Zondek Reaction. E. Balkow.—p. 159.
Spontaneous Circular Separation of Portio Vaginalis During Labor. Änne Schmitz.—p. 165.
Thymophysin and Intra-Uterine Asphyxia. R. Luh.—p. 166.
Induction of Labor Through Puncture of Amniotic Bag. M. Berger.—p. 178.

Inflammatory Diseases of Genitalia.—Mandelstamm and Teverowsky state that recognition of the exciting organism in inflammatory diseases of the genitalia and of its port of entry can be obtained by the application of Bourlakoff-Kandyba's method of regional intramucous injection (cervix, vagina or rectum) of various vaccines, such as gonococcus, streptostaphylococcus or colon bacillus vaccine. The reaction is specific. It appears in from fifteen to twenty minutes in gonorrheal, in from one-half hour to three hours in streptostaphylococcic and in from six to fifteen hours in colon bacillus infections. In from 70 to 90 per cent of the cases of gynecologic and puerperal infections the specific exciting cause can be established by the use of intracutaneous injection of various vaccines. In puerperal infections without localization in the true pelvis, this is the only specific method of diagnosis. In the presence of positive regional or skin reactions, repeated injections of the corresponding vaccine proved to be a specific in the treatment of genital and puerperal infections. The mechanism of the diagnostic as well as of the therapeutic effect of the vaccines depends on the activation of the reticulo-endothelial system and on the increased fermentative action of reticulo-endothelial elements on the exciting micro-organism.

Chorio-Epithelioma and Aschheim-Zondek Reaction.—Balkow states that the recent literature points to the fact that the Aschheim-Zondek reaction is almost always positive in the presence of a chorio-epithelioma. This is equally true for primary tumor and for the metastases after the removal of the primary tumor. Aschheim advised that examination of urine for the presence of the hormone be carried out along with other examinations in every suspected case of chorio-epithelioma. He likewise suggested that the test be repeated after the expulsion of a hydatid mole, as well as after an operation on or irradiation for chorio-epithelioma, in order to detect the earliest metastases. The author points out the difficulty in surgical indication when the histologic examination and the hormonal test disagree. He reports two cases of malignant chorio-epithelioma. In one case both the histologic examination of uterine scrapings and the Aschheim-Zondek test were positive before the operation. In the second case the histologic examination was negative, but, because of several strongly positive urinary tests, an early operation was carried out. In both cases, repeated examinations of urine for the presence of the anterior lobe pituitary hormone were negative and no clinical manifestations of recurrence were present. The author concludes that operative intervention is indicated in all cases of suspected malignant chorio-epithelioma if the Aschheim-Zondek test is positive even in the presence of a negative microscopic examination.

Hygiea, Stockholm

95: 1-32 (Jan. 15) 1933

*Botulism and Ichthyismus Neuroparalyticus. W. Mascher and O. Gabinus.—p. 1.
Contribution to Knowledge of Vitamin C Standard of Swedish School Children. G. Lindberg.—p. 10.

Botulism and Ichthyismus Neuroparalyticus.—In the case of ichthyismus neuroparalyticus described by Mascher and Gabinus, general and gastro-intestinal symptoms set in about ten hours after the consumption of cooked fish, which had been standing for a week, and were followed by paralysis of accommodation, the abducens nerves and the throat, with dryness of the mouth and constipation. While a distinct improvement in the paralyses was noted after botulism antitoxin intramuscularly, a fatal aspiration pneumonia developed. Botulism toxin was established in the blood. Inoculation of the patient's serum in mice resulted in typical paralyses, but no symptoms appeared after the injection of a lethal dose of patient's serum simultaneously with botulism antitoxin.

Ugeskrift for Læger, Copenhagen

95: 97-130 (Jan. 26) 1933

Eczema of Foot Caused by Epidermophyton Interdigitale Illustrated by Investigation in Ninety-Seven Students. S. Lomholt.—p. 97.
Removal of Ureteral Calculi Under Roentgen Control with Bøhringer's Ureteral Calculus Forceps. O. K. Svenningsen.—p. 101.
*Injection Treatment and Ambulant Conservative Treatment of Varices and Sequels (Ulcers of Leg). G. Poulsen.—p. 104.

Varices and Sequels.—In 10 of the 124 cases of varices reported by Poulsen, injection treatment was used as an adjuvant to otherwise conservative treatment, and in 105 conservative treatment was given after injection treatment performed elsewhere; the remaining 11 cases, observed several times at intervals of years, are illustrative of exclusively conservative treatment consisting of compression and, in cases with edema, of massage, carried out by the patient himself. In the author's opinion the ambulant conservative treatment of varices and resulting conditions should give place to operative intervention in exceptional cases only.